Time Navigator Around the World

Instructional Computing Courseware
for **Apple® II** Series Computers

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Time Navigator Around the World

No. A-277
For Apple® II Series Computers
Junior High - Adult

Drive through time in your "chronomobile," sharpening your sequencing skills and knowledge of world history and culture from ancient times to the present.

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Around the World

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Instructional Computing Courseware
for Apple® II Series Computers

This manual is compatible

with

the ***Time Navigator Around the World*** disk

Version 1.x

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1 computer disk ; 3 1/2 in. + 1 manual.
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Title from title screen.
Edition statement from disk label.
Copy-protected.
Audience: Junior high - adult.
Issued also on 5 1/4 in. computer disk.
Summary: A social studies program designed to sharpen students' sequencing skills and knowledge of world history from ancient times to the present. Challenges students to find their way back to the present after being sent back to a random point in history.
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Introducing *Time Navigator Around the World*

What Is *Time Navigator Around the World*—and Why?

Time Navigator Around the World is a simulation that helps students develop their knowledge of world history and culture. The underlying scenario of the simulation creates an environment in which time travel is possible. Students go back into the past and must "navigate" their way toward the present. Along the way in their journey they may encounter certain challenges that add excitement and variety to the experience. All the while, they're developing their knowledge of—and, ideally, their interest in—world history.

Designed for use by high school students, ***Time Navigator Around the World*** follows in the footsteps of the original ***Time Navigator*** (No. A-247) and its "prequel," ***Time Navigator Leaps Back*** (No. A-225). Like those two programs, ***Time Navigator Around the World*** focuses on the skill of *sequencing*—that is, being able to place historical events, persons, or artifacts in their correct chronological order. For example, while it's nice for students to know that Julius Caesar lived during the first century B.C., it's more important for them to know that he lived *after* the establishment of the Roman republic and *before* the establishment of the empire. In other words, knowledge of the correct *sequence* of events is more valuable than knowledge of specific dates. When students have a good sense of the order in which events occurred, they are better equipped to understand cultural movements, themes, and paradigms; to appreciate the expectations, assumptions, and constraints that people at various periods in history lived and worked with; and to look for possible cause-and-effect relationships among historical and cultural phenomena.

The concept of "cultural literacy," as articulated by E.D. Hirsch, Jr. in his 1987 book of the same name, has generated a great deal of attention and controversy of late. Not everyone agrees with the basic premises of Hirsch's thesis: that modern students lack a collective core of knowledge that serves as the underlying context for full, rich participation in the society and culture, and that to be "culturally literate" one must possess a particular body of knowledge that constitutes the "basics." But in light of recent studies that reveal the unfortunate lack of knowledge young people have about a wide range of topics—including geography, history, mathematics, science, and current events—there seems to be little doubt that a very real "knowledge gap" is developing between what most educators agree students *ought* to know and what they really *do* know.

While the term "cultural literacy" *per se* may be new, the concept really isn't. For many years, world history textbooks have employed, to varying degrees, an interdisciplinary approach to historical studies. Many textbooks have sought to provide students with an integrated sense of human culture, embracing history, literature, art, music, science, anthropology, and sociology. And while world history textbooks in the United States have long focused almost exclusively on "western civilization"—that is, European-based culture—more recent books have been paying much closer attention to other civilizations, including those of Asia, Africa, and the Americas before Columbus.

For instance, in discussing the 1400s, most textbooks, of course, deal with "traditional" historical events, persons, and issues, such as Columbus's voyages of exploration, Joan of Arc, and the Spanish Inquisition. But they also devote many paragraphs to the works of such artists and writers as Leonardo da Vinci, Michelangelo, and Thomas Malory, and to such technological innovations as the movable-type printing press and ships with multiple masts. And they may describe such "non-western" events as the establishment of the Aztec Empire, the capture of Timbuktu by the Songhai Empire of West Africa, and the explorations of the great Chinese admiral Cheng Ho. In short, modern textbooks reflect the growing awareness that there's a lot more to history than the politics and wars of Europe and North America.

To be sure, ***Time Navigator Around the World*** is a history package. But it also is very much a world cultural studies package. Students using ***Time Navigator Around the World*** will, of course, encounter wars, coronations, and revolutions. They'll also encounter important plays like *Antigone*, *Doctor Faustus*, and *King Lear*. They'll learn about ziggurats, Zoroastrianism, togas, the first paved streets, and the invention of paper. They'll overhear "conversations" about the Library at Alexandria, the Hegira of Muhammad, and the spread of slavery into the "New World." They'll read short synopses of such influential works of literature as Plato's *Republic*, *The Tale of Genji*, *The Thousand and One Arabian Nights*, and *Wuthering Heights*. And they'll hear brief excerpts of such classic musical compositions as Handel's *Messiah*, Beethoven's Ninth Symphony, and Stravinsky's *The Rite of Spring*.

With ***Time Navigator Around the World***, students will develop their skill at determining the correct sequence of a wide variety of historical and cultural events and artifacts while at the same time enriching their knowledge of their culture and gaining a greater sense of the cultural "feel" of various periods in world history.

Summary Description

In ***Time Navigator Around the World***, students "go back in time" and then maneuver their way toward the present by selecting the most recent historical events, persons, or artifacts from groups of three. Students can choose to work with headlines, conversations, people, artifacts, or arts and literature.

Curriculum Area:	Social studies; interdisciplinary*
Subject:	World history
Topic:	Historical sequencing
Type:	Simulation
Grade Level:	Junior and senior high
Classroom Use:	Individual, small groups, or large group

*For information about use in non-social studies classes, see page 35.

Time Navigator Around the World includes Management Options that allow teachers to "customize" the program to their classroom needs. See pages 19-30 for information about using Management Options.

Program Delivery and Equipment Requirements

Time Navigator Around the World is delivered on a 3.5" or double-sided 5.25" disk. It requires:

- an Apple II series computer (Apple //e, //c, IIc Plus, or IIGS) with at least 128K of memory;
- at least one disk drive;
- a monochrome or, preferably, color monitor.

In addition, the use of a printer is optional.

If you're running ***Time Navigator Around the World*** on an Apple IIGS, you may wish to go into the IIGS Control Panel to set the system speed at "normal" rather than "fast." (See your *Apple IIGS User's Guide.*) This slows the Adventure Level animation, making it easier for most students. On the other hand, some may prefer the challenge of playing at the faster speed.

Learning Objectives

In using ***Time Navigator Around the World***, students should be able to develop:

- their skills at recognizing historical sequence and at determining which of several historical events or artifacts occurred most recently;
- their ability to use logic and apply strategy in an effort to achieve success;
- their knowledge of events, persons, and artifacts from world history;
- their appreciation of and interest in both western and "non-western" cultures.

For information about student *thinking skills*, see pages 36-38.

A Brief Note About "Trivia"

While using ***Time Navigator Around the World***, students may encounter references to many things that they've never heard of. Some may strike you as "trivia." For example, do we really expect high school students to come to this program knowing about such relatively obscure works as the *Herekali* or *Orfeo*? No, not really. ***Time Navigator Around the World*** is not designed to quiz students on trivia. But it *is* designed to expose students to some perhaps unfamiliar events, names, artworks, and cultural artifacts and give them an opportunity to apply more general knowledge as they try to place them in a historical sequence.

Students can use the program's "More information" feature to learn that the *Herekali* is the oldest known written epic of East Africa, and it's important for students to become aware of various aspects of African culture. "More information" similarly reveals that *Orfeo* was written by the important late Renaissance composer Monteverdi and is generally considered to be the first "true" opera. Without ever having heard of these specific works, many students may nevertheless be equipped, via their schoolwork, to have a good idea of when they were created. And if they aren't, they soon will be. After all, ***Time Navigator Around the World*** is about *discovery.*

NOTES

Program Preview

Beginning the Simulation

Students begin by inserting the ***Time Navigator Around the World*** disk into the disk drive. If students are using the 5.25" disk version with a single disk drive, they should insert Side 1. If they're using the 5.25" disk version with two disk drives, they should insert Side 1 in Drive 1 and the duplicated copy of Side 2 in Drive 2.

Note: If you're using the 3.5" disk version of ***Time Navigator Around the World***, a single 3.5" disk drive provides optimum performance. If you're using the 5.25" disk version, you can use one or two 5.25" disk drives. Although ***Time Navigator Around the World*** works perfectly well with a single 5.25" disk drive, some students may be frustrated by the occasional need to switch disks. But if you have two 5.25" disk drives, you can use any standard copying system (such as the ***ProDOS User's Disk***) or the ***MECC Copy System*** to copy the unprotected "data" side (Side 2) of the disk onto a blank 5.25" disk. Insert Side 1 of the original MECC disk in Drive 1 and your copied "Side 2" data disk in Drive 2. Then you can run the program without having to switch disks.

Figure 1

After inserting the disk(s), students should turn on the computer. A few moments later, the ***Time Navigator Around the World*** main menu will appear on the screen (Figure 1).

Students select the option they want by typing the corresponding number and then pressing the Return Key. Alternatively, they can use the Arrow Keys to move the cursor to the preferred option, at which point they should press Return.

To begin the simulation, students select Option 1, "Go Back in Time."

Time Navigator Around the World provides students with the option of saving incomplete "games." If there are saved games currently stored on the disk, the program asks whether students wish to continue a previously saved game. If they answer **Yes**, they will be permitted to choose from the list of saved games. If they answer **No**, they will proceed with a new game.

Program Preview

If students are beginning a new game, an instruction screen briefly describes the time-travel scenario to students. By pressing the Space Bar, students continue to a screen that informs them of their goal (the year toward which they should "navigate") and asks for their initials (Figure 2). Students can enter up to three letters. They should then press Return.

Unless you have used Management Options to set a simulation level of your own choice (see page 25), the program asks students to choose a level of play (Figure 3). The Discovery Level is the simpler level, at which students focus solely on the historical sequencing of events. ***Time Navigator Around the World*** does not "keep score" at this level. By contrast, the Adventure Level offers greater unpredictability and challenge. Not only does the program keep score at this level, but students may also encounter "storms" and other unusual phenomena as they travel through the time stream. Students should select whichever level they or their teachers prefer.

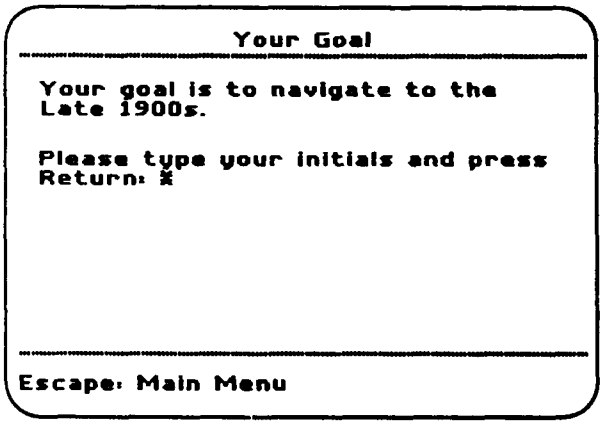


Figure 2

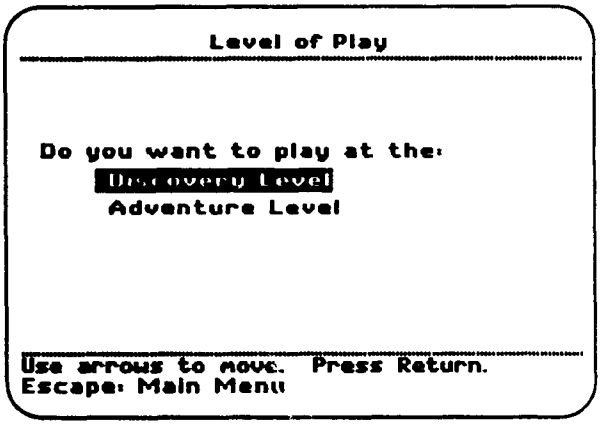


Figure 3

Note: If students are using the 5.25" disk version of the program with a single disk drive, they will now be instructed to remove the disk, flip it over, re-insert it, and press the Space Bar to continue. (This will occur again toward the end of the program.)

The program's main interaction screen—also called the "Shore View"—then appears. Figure 4 depicts this screen and describes its various parts.

A. The "chronometer" – Tells students their current historical period as well as their goal.

B. The score – If students are playing at the Adventure Level, the program keeps score. Students begin with 200 "fuel points." If students are playing at the Discovery Level, the program doesn't keep score, so this space is left blank.

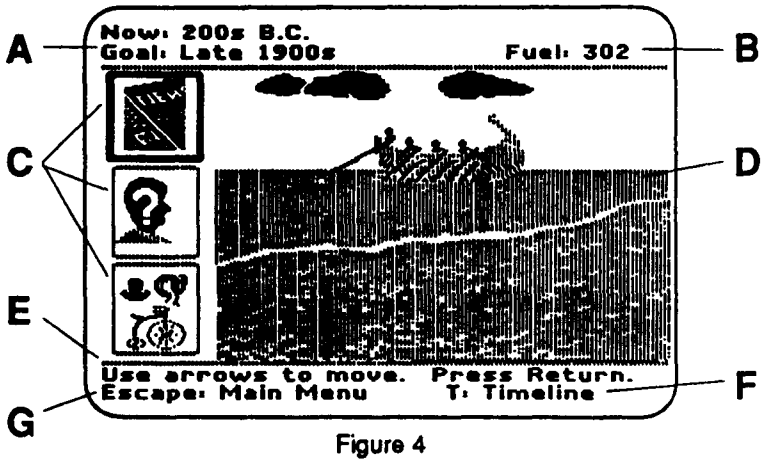


Figure 4

C. "Topic icons" – These represent the topic categories that students can work with. Students select the one they wish to use. There are five different topic areas in ***Time Navigator Around the World***, and either two or three of the icons will be available at any one time.

D. The "Shore View" – This is simply an illustration of a "typical" seaside scene from the period in which students currently find themselves.

E. The instruction line – Tells students what to do to continue.

F. The "Timeline" option – Pressing the T Key allows students to see or print their timeline, which is a year-by-year record of their "journey through time."

G. The "Escape" line – Tells students where they will go if they press the Escape Key. Usually it's one step "backward" in the program.

Students use the Arrow Keys to highlight the icon representing the topic category they wish to work with. (Figure 5 depicts the icons associated with the five topic categories in ***Time Navigator Around the World***.) Then students press Return to select that category.

"Headlines" – Describes a major news event of a given period.

"Conversations" – Simulates a "typical" conversation about persons or events of popular interest (including politics, fads or trends, and popular culture) in a given period.

"Arts and Literature" – Cites a popular, influential, and/or critically acclaimed creative work—such as a novel, poetry, play, musical composition, painting, sculpture, building, or other artwork—that was created or published or gained notoriety in a given period.

"Artifacts" – Cites a cultural artifact (such as a vehicle, an invention, or a fashion trend) that first appeared, became popular, or gained notoriety in a given period.

"People" – Describes a historically or culturally important person who lived during a certain period. If a person's life spanned two periods, that individual is included in the period that saw his or her greatest achievements.

Figure 5

Note that while students are on the "Shore View" screen—before they have selected one of the topic category icons—they can press the T Key to examine a "timeline" of their travels through history. For information about using the timeline, see page 16. But let's go ahead and see what happens when students select an icon from the "Shore View" screen.

The Historical Sequencing Activity

After students select the icon of their choice from the "Shore View" screen, they'll see three items on the screen (Figures 6, 8, 10, 12, and 14 below and on page 9, representing each of the five topic categories). One of them is from the period students are currently in; one is from an earlier period; and one is from a more recent period. The problem is that students aren't told which is which. Students are, however, reminded of the period they're currently in by the "chronometer" in the upper-left corner of the screen. If students are playing at the Adventure Level and if teachers have used the "Set problem categories" Management Option to assign different "score factors" to the topic categories (see pages 23-24), the score factor appears in the upper-right corner of the screen as well. This informs students of the fact that, for scoring purposes, some categories have greater "value" than others.

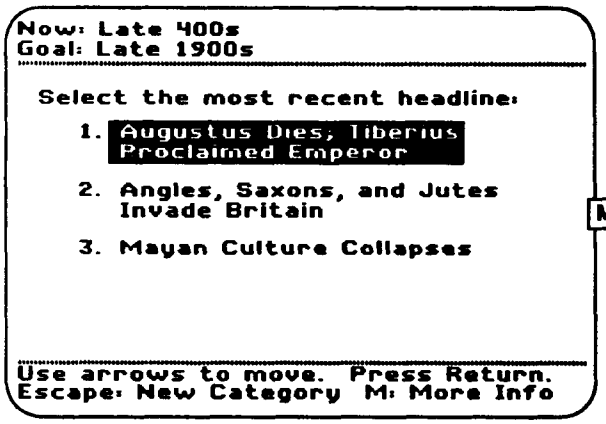


Figure 6

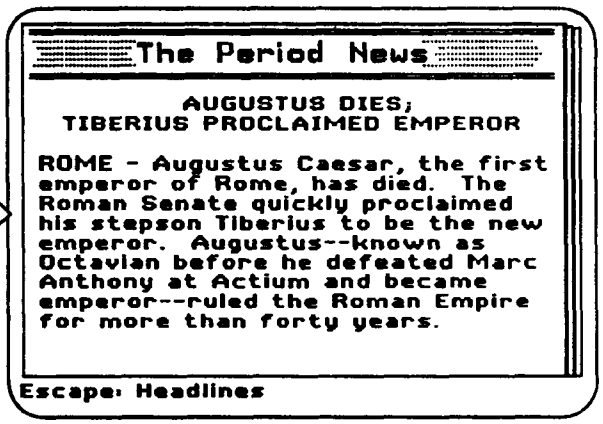


Figure 7

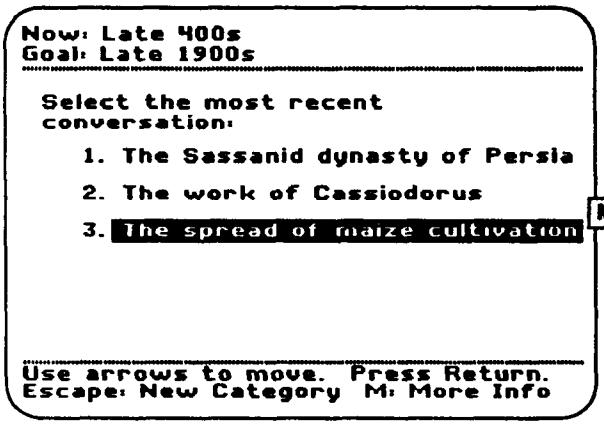


Figure 8

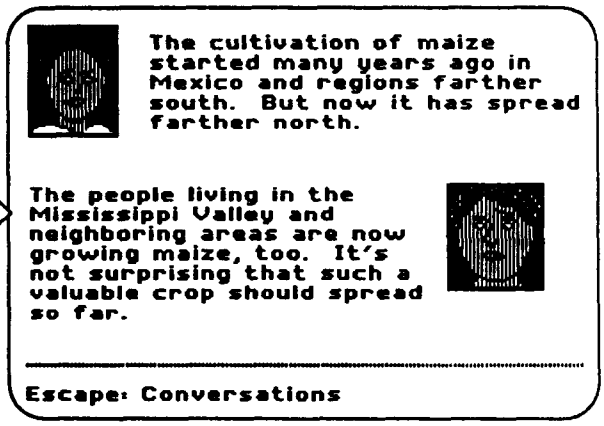
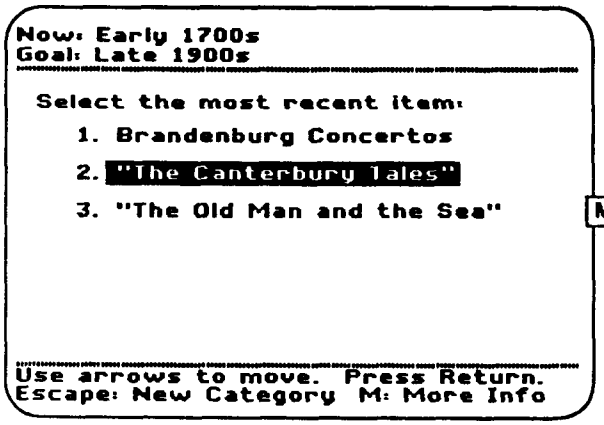


Figure 9



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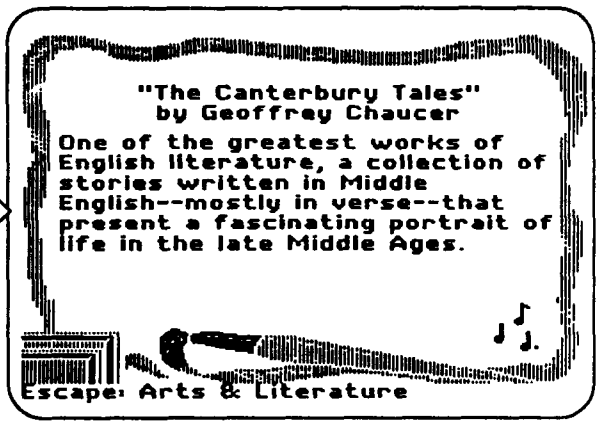
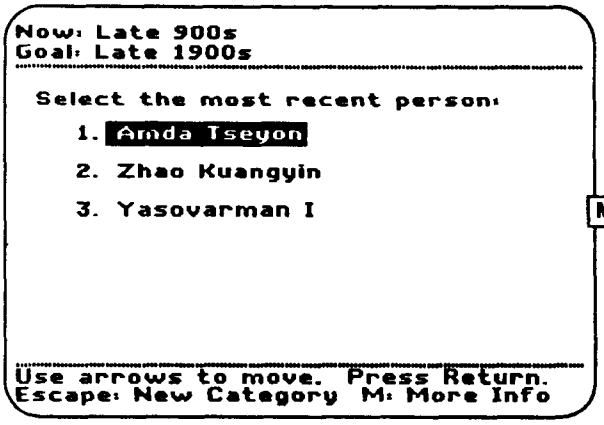


Figure 11



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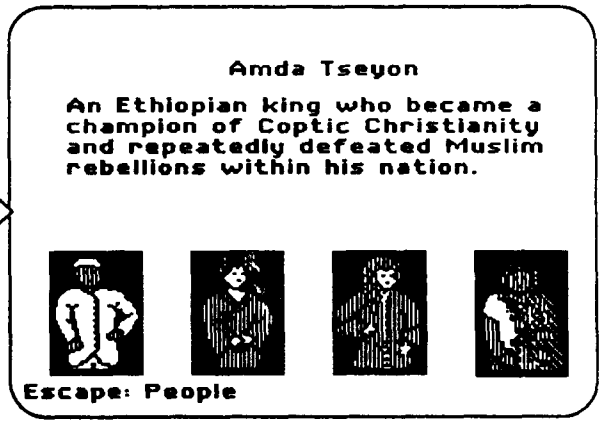


Figure 13

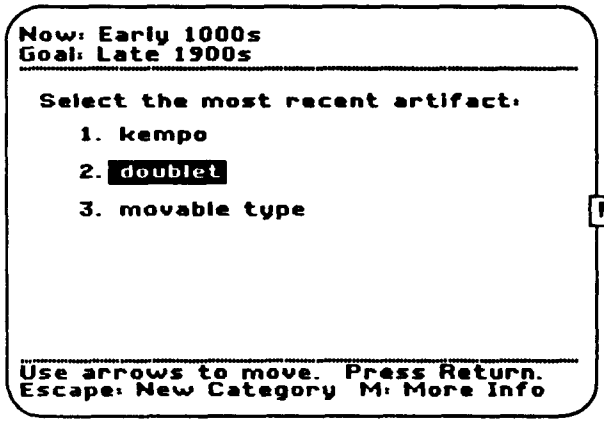


Figure 14

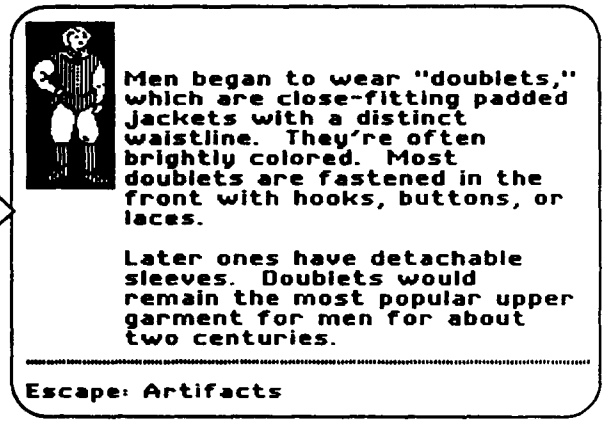


Figure 15

It's up to the students to decide which item is from the more recent period—that is, the one that comes last chronologically. If they can pick that item, they'll move ahead in time, toward that period and closer to their goal. If students are playing at the Adventure Level, they'll also gain fuel points.

If, however, students pick the item from an earlier period, they'll move backward in time, farther from their goal. If students are playing at the Adventure Level, they'll also lose fuel points. If students pick the item from the period they're currently in, they'll stay right where they are without moving either forward or backward in time. At the Adventure Level, they'll also lose a small number of fuel points.

If students think they know the answer—that is, the most recent item—they can select that item right away either by typing the corresponding number and pressing Return or by using the Arrow Keys to move the cursor to the appropriate item and then pressing Return.

But if students aren't sure which item to choose, or if they're simply interested in learning a little more about one or more of the items in question, they can move the cursor to the item of their choice and then press the M Key or the Space Bar for "More information." They'll then see a screen that provides additional information about the item in question. For the "Headlines" category, "More information" allows students to read the first few sentences from the corresponding news story (Figure 7 on page 8). For "Conversations," students can actually read the conversation (Figure 9 on page 8). For "Arts and Literature," students see the name(s) of the creator(s) of that work (when they're known) and some information about its origin and/or history (Figure 11 on page 9). For instance, if the artwork is a novel, the students will be able to read a brief plot synopsis. If it's a musical composition, students will hear a brief excerpt of its melody in addition to the background information. Students can hear this melodic excerpt as many times as they wish by pressing the H Key (for "Hear again"). For the "People" category, students will see a brief description of the historical or cultural significance of that person (Figure 13 on page 9). And finally, for "Artifacts," students are provided with some interesting information about that artifact and, in some cases, an illustration (Figure 15 on page 9).

After examining this information, students can return to the three-item selection screen by pressing the Escape Key or the Space Bar. If they wish, they can then move to a different item and press the M Key or Space Bar again to see "More information" about that item as well.

Once students have decided which item they believe to be the most recent, they can use the Number or Arrow Keys to move to that title and press the Return Key to select it. If, however, students do not wish to choose, they can press Escape to return to the "Shore View," where they can pick a different topic category.

After Making a Selection

After students make their selection, the program reveals the periods for each of the three choices, arranges them in chronological order, and distinguishes the item that students had selected by drawing a box around the period (Figure 16, which uses the "Headlines" category as an example). Students are told that they will travel in time toward the period that they had chosen—although, of course, if they chose the "current" period, they are told that they will remain where they are.

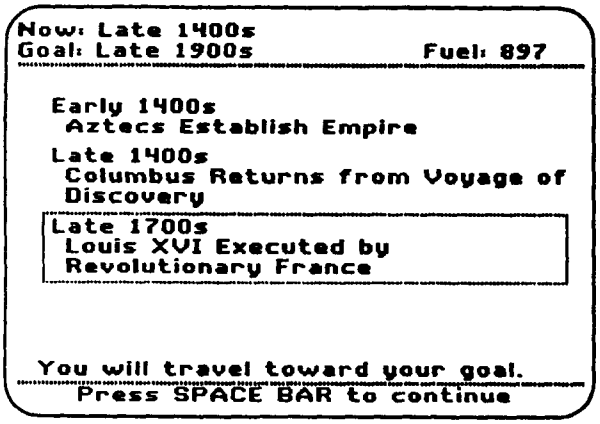


Figure 16

If students are playing at the Adventure Level, they will gain additional fuel points for making the "correct" choice—that is, for the most recent period. An "incorrect" choice (for the current period or an earlier one) will cause them to lose fuel points.

Students must press the Space Bar to continue. If students had chosen the item from the current period, they will simply go to another "Shore View" screen, remaining in the same period. There may or may not be a different set of category icons for them to choose from. (See Figure 4 on page 6.)

Figure 17

If, however, students chose an item from an earlier or more recent period, the next thing they see is a brief animated sequence of the chronomobile (time-traveling vehicle) traveling through the "time stream" (Figure 17). They are traveling toward the period associated with their previous choice.

If students are playing at the Discovery Level, they will quickly emerge from the time stream without incident, finding themselves at the "Shore View" for a new period.

If students are playing at the Adventure Level, unexpected events may occur while they are in the time stream. They may encounter strange time-stream phenomena, such as cyclo-chronic vortices ("storms"), chrono-logistic protuberances ("bumps"), or chronotron fields. If a storm, bump, or chronotron field appears nearby in the time stream, students are alerted by their chronomobile scanner. But if a storm, bump, or field does not appear, students will quickly find themselves back at the "Shore View" for a new period.

Storms

If a cyclo-chronic vortex—also known as a "storm"—appears nearby in the time stream, the chronomobile scanner alerts students to the potential danger (Figure 18).

Storms are classified according to their strength. The stronger a storm, the greater the potential danger it poses to any chronomobile that crosses its path. See the chart below (Figure 19) for information about the different kinds of storms and how they can affect students' journeys through time. (This chart and other information about using the program are available as reproducible student handouts. See pages 47-50.)

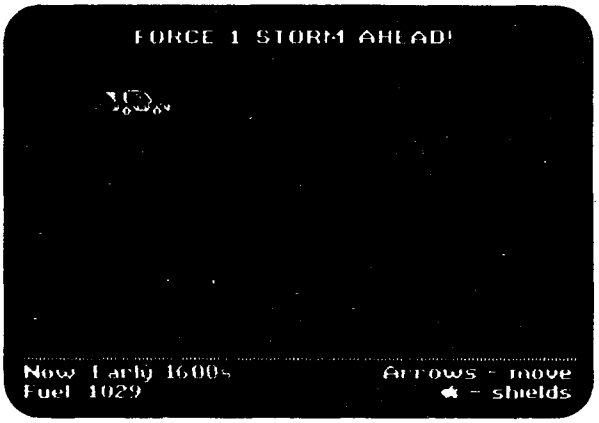


Figure 18

When faced with a storm, students have several options. They may choose to do nothing—that is, simply ignore the storm. If students do this, the storm may or may not hit. If the storm doesn't hit, students will emerge from the time stream, finding themselves at the "Shore View" for a new period. (See Figure 4 on page 6.) If, however, the storm does hit, students will see a screen that describes its effects. (See Figure 22 on page 13 for an example.)

Cyclo-chronic Vortex Classification Chart

Force 1	A weak storm that poses little danger to time travelers. It may have no effect at all on a chronomobile. On the other hand, it may throw you a bit off course. A Force 1 storm moves very slowly and in straight, horizontal lines.
Force 2	A slightly stronger storm that is likely to throw a chronomobile a bit off course. Like a Force 1 storm, it moves slowly, but in diagonal paths, making it a little more difficult to evade.
Force 3	A fairly strong storm that is likely to throw a chronomobile far off course. It may damage a chronomobile, causing a loss of fuel, or even destroy the vehicle, causing its pilot to be stranded in time. It moves along an unpredictable path.
Force 4	A strong storm that may throw a chronomobile far off course or cause fuel loss or destruction, causing its pilot to be stranded in time. It moves quickly and seems to "track after" a chronomobile because of a tendency to curve toward the wakes these vehicles cause in the time stream.
Force 5	The strongest type of storm—extremely dangerous. Like a Force 4 storm, it can throw a chronomobile off course or, more likely, cause fuel loss or destruction, causing its pilot to be stranded in time. It moves quite fast and, like Force 4 storms, "tracks after" a chronomobile. It's *very* difficult to evade a Force 5 storm.

Figure 19

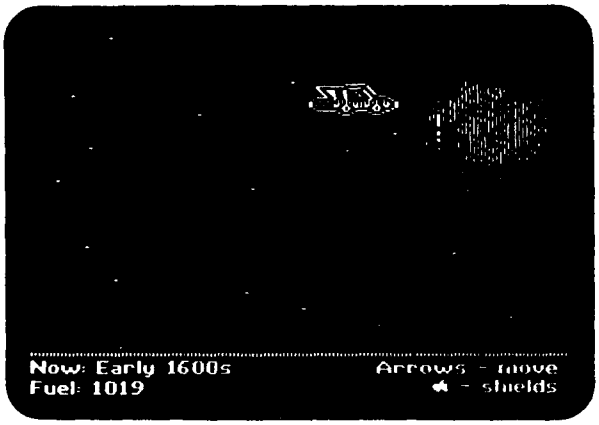


Figure 20

Another option is for students to raise their chronomobile stability shields by holding down either of the Apple (🍎) Keys (Figure 20). Raising shields, however, costs extra fuel points. The longer students hold down an Apple Key, the more fuel they use. While shields do not decrease the chances of hitting a storm, they do decrease the likelihood of serious consequences should the storm actually hit. If the storm should bypass the students, they will emerge from the time stream at the "Shore View" for a new period. If, however, the storm hits, students will see a screen that describes its effects.

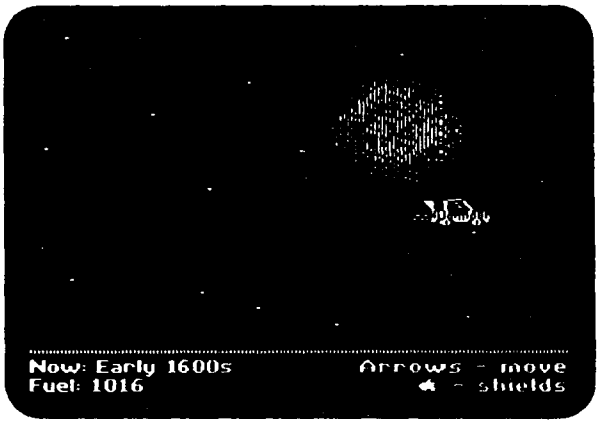


Figure 21

A third option is to take evasive action by using the Arrow Keys to maneuver the chronomobile (Figure 21). Each press of an Arrow Key costs one point of fuel. If students wish, they can use the Apple and Arrow Keys simultaneously to raise their shields *and* try to evade the storm. This, however, uses up fuel points *very* quickly. If students successfully evade the storm, they will emerge from the time stream, finding themselves at the "Shore View" for a new period. If, however, they hit the storm, they will see a screen that describes its effects. Figure 22 is one example of this type of screen, explaining that the storm has forced the chronomobile off course and that students will emerge from the time stream in a different period from the one toward which they were originally headed. This can work either to the students' advantage or disadvantage.

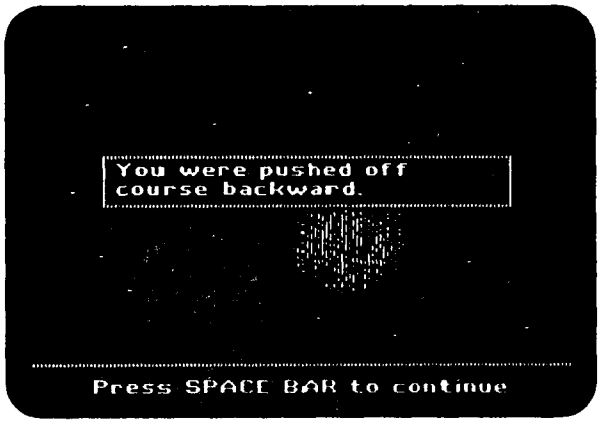


Figure 22

Other possible outcomes of hitting a storm include no effect whatsoever; slight damage, causing a loss of fuel points; and destruction of the chronomobile, resulting in students being stranded in the past. This last possibility brings the simulation to a sudden conclusion. (See pages 15-16.)

Bumps

Another strange phenomenon that students may encounter in the time stream are chrono-logistic protuberances, also known as "bumps." Bumps aren't nearly as complex or serious as storms. For one thing, there's only one kind of bump. And bumps can't destroy a chronomobile. Hitting a bump, however, can throw a chronomobile unpredictably off course.

If a bump appears ahead in the time stream, the chronomobile scanner alerts students to its presence (Figure 23).

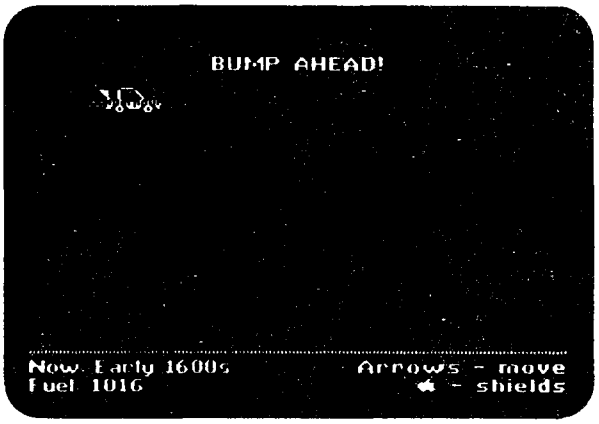


Figure 23

When faced with a bump, students have two options. One option is simply to use the Arrow Keys to go around it. (Bumps are much easier to evade than storms.) After all, if students happen to be close to their ultimate goal, they may not want to be hurled off course—perhaps much farther in the past. Of course, using the Arrow Keys costs fuel points. Students then emerge from the time stream at the "Shore View" for the period toward which they were originally headed. (See Figure 4 on page 6.)

Students may, however, choose to go ahead and hit the bump. If they hit the bump, their chronomobile is hurled randomly off course. It may be just a century. Or it may be more than a thousand years. And it can be either backward or forward in time. Students are informed of this fact (Figure 24), after which they emerge from the time stream at the "Shore View" for a period *other than* the one toward which they were originally headed.

Figure 24

Incidentally, raising storm shields (by pressing an Apple Key) is a waste of fuel points when students are confronting a bump. Shields have no effect on the outcome of hitting bumps.

Chronotron Fields

Chronotron fields behave just like bumps in that they neither move nor pose a serious threat to chronomobiles. But, unlike bumps, they can't throw students off course. In fact, the effect of hitting a chronotron field is always good: students *gain* a random number of fuel points! So, when the chronomobile scanner alerts students that a chronotron field is nearby, students should actually *try* to hit it. They should be careful, however, *not* to raise their storm shields. Shields block the positive effects of hitting a chronotron field. In other words, if students hit a chronotron field while their shields are raised, they won't gain any points at all. In fact, they'll *lose* points because raising shields uses up fuel points.

Concluding the Simulation

As already noted, the simulation will come to an end if the chronomobile is destroyed by a storm, leaving students stranded in the past. Another way in which the simulation can come to an "unsuccessful" conclusion is if the chronomobile runs out of fuel, which may occur if students repeatedly make incorrect choices and lose some fuel in a storm. Running out of fuel also leaves students stranded in the past. Because students playing at the Discovery Level do not have to worry about storms or fuel, being stranded is not a possible outcome for them. Only those students playing at the Adventure Level risk being stranded.

Figure 25

The simulation ends "successfully" if students navigate their way back to the late 1900s or to whichever period has been set as the goal through use of the Management Options (see pages 19-21). This occurs after students select an item from the late 1900s or the alternate target period. No storms or bumps will appear as students pass through the time stream this one last time. In this way, their success is not jeopardized by random events.

Successful students then see a pair of congratulatory screens (the first of which is depicted in Figure 25).

At the Discovery Level, there is no score. At the Adventure Level, students receive a final score that equals the number of fuel points they have, plus a bonus based upon the ratio of *correct* choices they made to their total number of choices. In other words, six correct choices out of seven attempts will earn a higher bonus than five out of seven. Also, if students got at least one problem correct in each of the five topic categories (or fewer if teachers have used Management Options to prevent access to certain categories; see pages 23-24), they will receive an extra bonus of 100 points. Students playing at the Discovery Level are told that they have earned the rank of "Chrononaut First-Class." At the Adventure Level, students receive a rank based upon their final score. These ranks, which for many students serve as motivational devices, are (from lowest rank to highest) "Low-Watt Chrononaut," "On-the-Dot Chrononaut," "Red-Hot Chrononaut," "Big-Shot Chrononaut," and "Top-Notch Chrononaut."

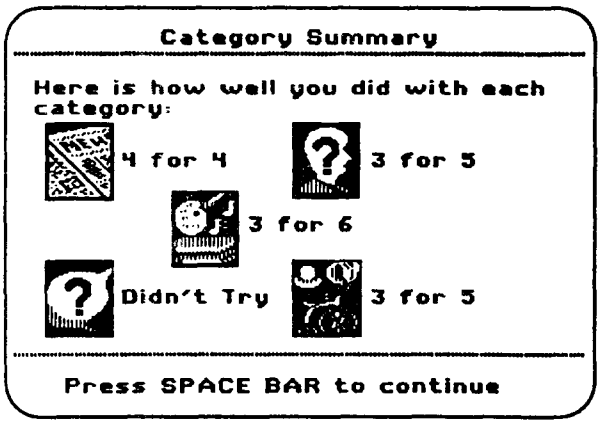


Figure 26

Students then see a "Category Summary" screen (Figure 26). This screen indicates the number of correct (most recent) choices students made out of the number of attempts for each of the categories to which students were allowed access (again, see pages 23-24). In this way, the category summary indicates where students' likely strengths and weaknesses lie. It may suggest, for instance, that a student knows a lot about inventions and the arts but lacks knowledge of major historical "news" events.

Next, students are given the opportunity (Figure 27) to see another type of summary of their performance. This is their "timeline," which students can also examine *during* the simulation by pressing the T Key at the "Shore View" screen (see Figure 4 on page 6). If students don't wish to see their timeline now at the end of the game, they can "bypass" it by selecting a third option, "See Main Menu." *(This third option is only available at the end of the game. In the middle of the simulation, students leave the timeline and resume the game by pressing the Escape Key to return to the "Shore View.")*

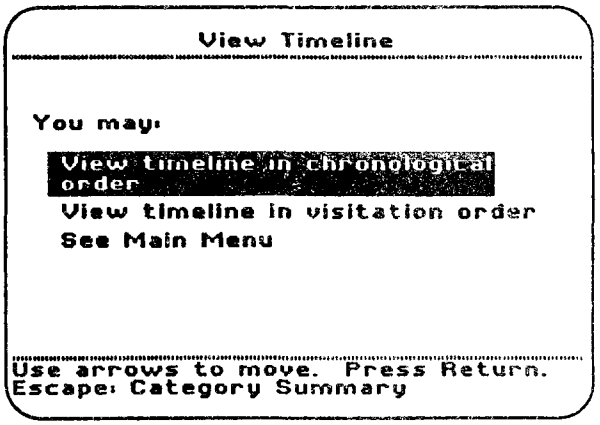


Figure 27

If students want to go ahead and look at the timeline, they can view it in chronological order (beginning with the earliest period and ending with the most recent) or in "visitation order" (beginning with the period in which they started their expedition and ending with the final period they have visited). In this way, the timeline provides a record of the students' journey through world history.

Students then see their timeline (Figure 28). Pressing the Space Bar allows students to examine their timeline screen-by-screen. If a printer is available and if the "Printer Support" Management Options have been set correctly (see pages 30 and 54-55), students can print copies of their timeline. All they have to do to start printing is press the P Key.

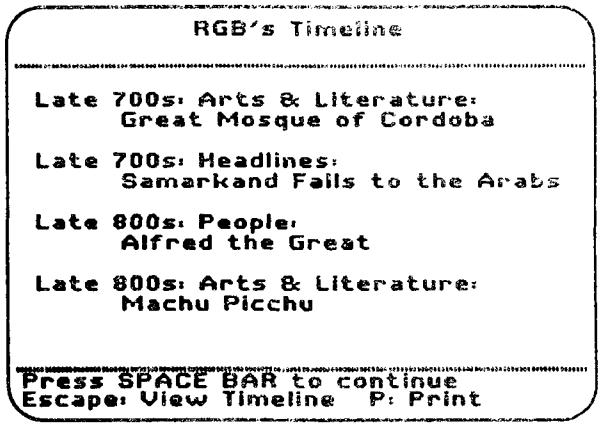


Figure 28

When students have reached the end of their timeline, they return to the "View Timeline" menu (Figure 27), allowing them to see their timeline again—perhaps this time in a different order—or to return to the main menu.

If the "Hall of Fame" feature is active (see pages 27-28 for information about deactivating it), students playing at the Adventure Level who are among the ten highest scorers for the set of scores currently stored on the disk will now proceed to the Hall of Fame (Figure 29). The initials entered by them at the start of the simulation and the rank they earned will appear with their score. These high-scoring students can then proceed to the main menu by pressing the Space Bar.

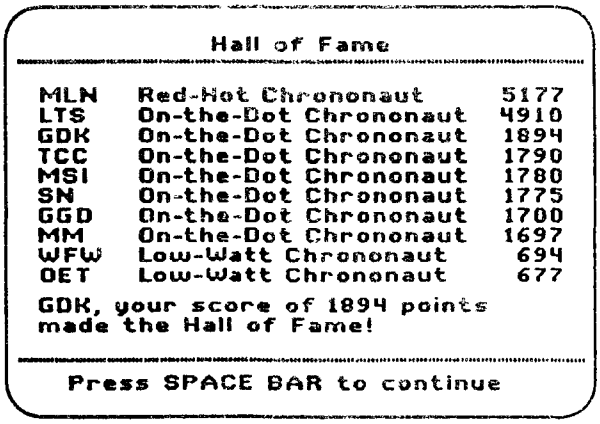


Figure 29

Quitting and Saving

When students have completed a ***Time Navigator Around the World*** simulation either successfully or unsuccessfully, they will return to the main menu after examining the various "concluding" screens (the category summary, the option to examine the timeline, and the high-score information). Once back at the main menu, students can choose either to quit or to run the program again.

On the other hand, students may choose to quit in the *middle* of the ***Time Navigator Around the World*** simulation either with or without the intention of resuming later. They can end the simulation simply by pressing the Escape Key while viewing any screen *except* the brief time-stream animation (see Figure 17 on page 11). Pressing Escape always "backs up" one step in the program. Students should continue to press the Escape Key until they are at the "Shore View" screen (see Figure 4 on page 6). *At the "Shore View" screen, pressing the Escape Key will signal their desire to end the current simulation.*

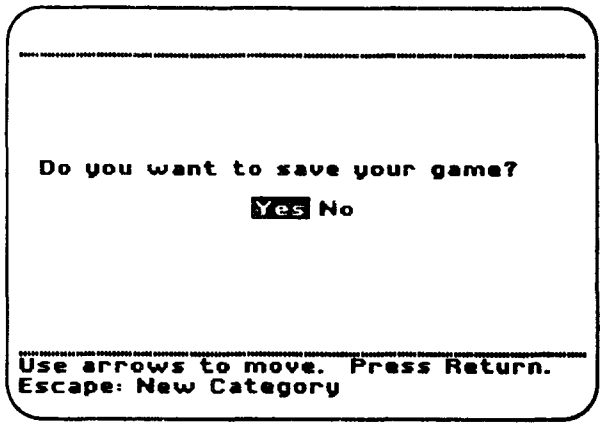


Figure 30

Because the simulation has not been completed (that is, students neither have reached their goal nor have been stranded in the past), students are then asked whether they wish to save their current game so that they can continue playing later (Figure 30).

Students use the Arrow Keys to highlight either **Yes** or **No** and then press Return. If students choose *not* to save their game, they return immediately to the main menu, where the "End" option provides a convenient way to end ***Time Navigator Around the World***. If, however, students choose to go ahead and save their game, the program will save their game to the disk before returning to the main menu. ***Time Navigator Around the World*** will use the initials entered by the student at the beginning of the program as a "name" for the saved game.

If stud are using a single 5.25" disk drive, they will receive a message instructing them to tu isk over in order to save their game.

U games can e saved at one time on the ***Time Navigator Around the World*** disk. If are alre aved on the disk and a student attempts to save a new game, the oldest disk is natically erased as the new one is saved. The entire set of games d o k can also be erased through use of the Management Options (see

Management Options

Time Navigator Around the World features Management Options that allow teachers to "customize" the program to their particular lesson plans and classroom needs.

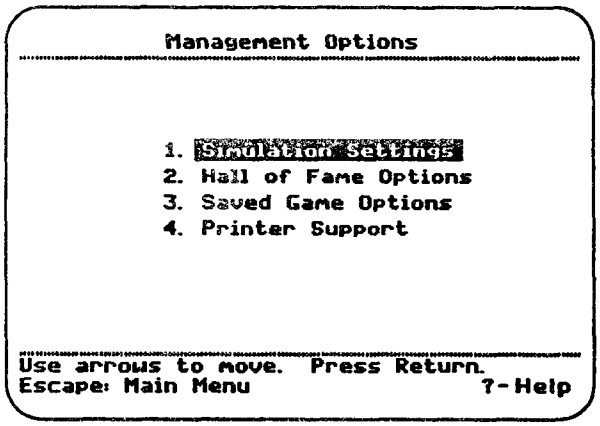


Figure 31

To prevent students from modifying the program against the wishes of their teachers, the Management Options are kept "hidden." *To gain access to the Management Options, you must press* ***Control-A*** *(hold down the Control Key and press the A Key) when the main menu appears on the screen.* The Management Options menu then appears (Figure 31).

To use a particular Management Option, type the number of the appropriate option and press Return or use the Arrow Keys to move the cursor to that option and then press Return. On this and certain other Management Option screens, you can press the Question Mark (?) Key to view a help screen.

Management Option 1, "Simulation Settings"

The first Management Option, "Simulation Settings," allows you to control various aspects of the ***Time Navigator Around the World*** simulation so that it better conforms to your lesson plans, student needs, and/or classroom situation.

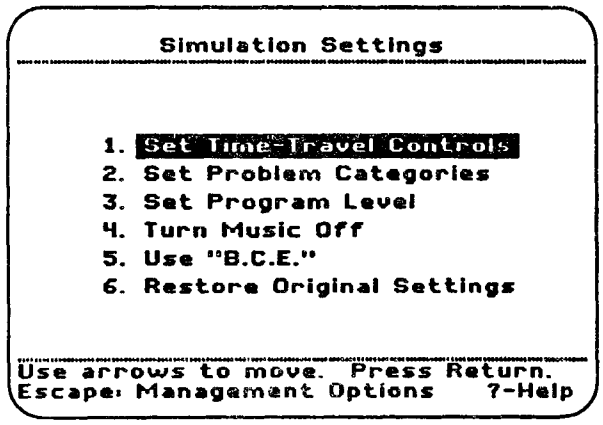


Figure 32

Select Option 1, "Simulation Settings," from the Management Options menu. The "Simulation Settings" menu then appears (Figure 32). The options found on this menu allow you to modify the periods covered by the simulation and change the size of the students' "time leaps," to designate the topic categories to which students have access and their respective "score factors," to determine the level at which students will use the simulation, to turn music off (or back on again) in the "Arts and Literature" category, to choose between using "B.C." and "B.C.E.," and to restore the program's original settings quickly and easily.

To modify the periods covered by the time-travel simulation and/or to change the size of the students' time leaps, select Option 1, "Set Time-Travel Controls," from the "Simulation Settings" menu. The "Set Time-Travel Controls" screen then appears (Figure 33). The current settings are shown at the top of the screen.

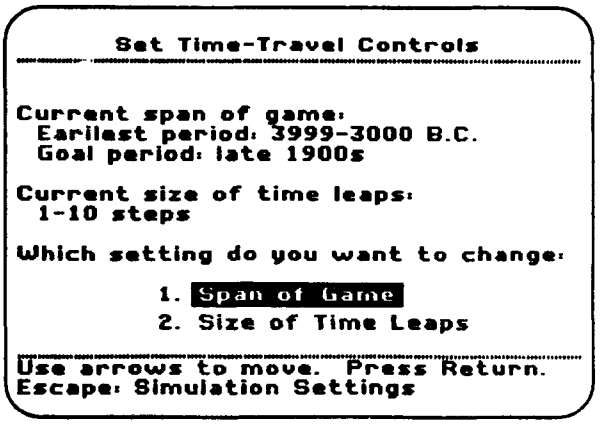


Figure 33

There are two main reasons for using this option to modify the simulation:

- to make the simulation conform more closely to your curriculum, and
- to modify the difficulty of the simulation, making it easier for less advanced students or more challenging for those who are more advanced.

Time Navigator Around the World is originally set to cover the span of world history from ancient Egypt and Sumeria up through the late twentieth century. *In other words, its "default" range is from 3999 B.C. to the late 1900s.* If, however, you want your students to focus on a narrower span of time—say, from A.D. 500 to 1500—because you're currently studying the medieval era in class, then you can use the "Set Time-Travel Controls" screen to modify the simulation.

Setting #1 on the "Set Time-Travel Controls" screen is "Span of Game." This is the span of periods that students can visit while using ***Time Navigator Around the World***. The more recent of these two periods will serve as the "target" or goal for the students' journeys through time. The maximum span of the game is from 3999 B.C. to the late 1900s; that is, you can't set any period earlier than 3999-3000 B.C. or later than the late 1900s. As already noted, these are the original, "default" settings—the ones that appear in unmodified versions of ***Time Navigator Around the World***.

To change the "Span of Game" setting, select Option 1 on the "Set Time-Travel Controls" menu. You will first see a screen that provides simple directions. Press the Space Bar to proceed.

A list of the periods available in ***Time Navigator Around the World*** then appears on the screen (see Figure 34 on page 21). Because not all of the periods will fit on one screen, you can move through the list by pressing the N Key to see the next screen or the P Key to see the previous screen. The letter E appears next to the period currently set as the earliest one to be used in the simulation. You can change the earliest period by using the Arrow Keys to move through the list, highlighting different periods, and pressing the E Key (for "earliest") when the period that you wish to be the earliest is highlighted. The letter E will then appear next to that period.

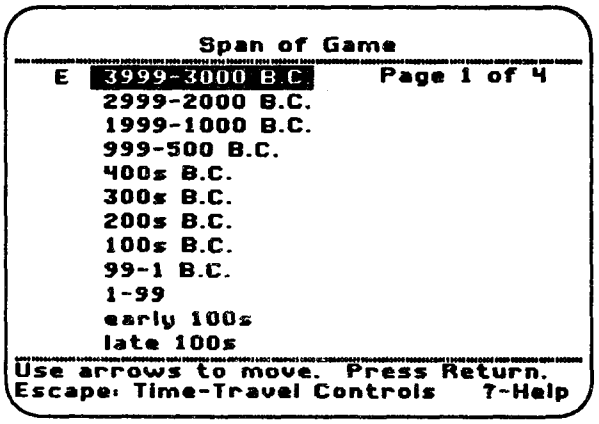


Figure 34

Similarly, the letter G (for "goal") appears next to the period currently set as the most recent one used in the simulation. You can change the goal by using the Arrow Keys to move through the list, highlighting different periods, and pressing the G Key when the period that you wish to be the goal is highlighted. The letter G will then appear next to that period.

Note that periods B.C. (or B.C.E.) are indicated as such, but that periods A.D. (or C.E.) have no abbreviations attached to them. This is true both in the Management Options and in the simulation itself.

If you need a reminder about which keys to use to make changes, press the ? (question mark) Key to see the instruction screen again.

The program will not allow you to enter a goal period that is either earlier than or fewer than eight periods after the earliest period. That is, if you designate "early 500s" as the earliest period, you must designate "early 900s" or something later as the goal period.

Once you've finished modifying the span of the game, press the Return Key to implement your changes and return to the "Set Time-Travel Controls" screen. If, however, you change your mind about making any modifications to the span of the game, press the Escape Key to return to the "Set Time-Travel Controls" screen without implementing any of the changes you might have made.

You may inadvertently try to adjust Setting #1 in such a way that it causes conflict with Setting #2. For information about what will happen if this occurs, see the "Note" below.

Setting #2 on the "Set Time-Travel Controls" screen is "Size of Time Leaps." This is the possible range of periods that students will "leap" during any one trip through the time stream. And because these leaps are dependent upon the choices students are offered on the various selection screens, this setting also controls the minimum and maximum difference in time between the options appearing on a selection screen at any one time. The maximum size of time leaps is from 1 to 15 periods. The original default setting is for leaps of from 4 to 8 periods.

To change the "Size of Time Leaps" setting, select Option 2 from the "Set Time-Travel Controls" menu and press Return. You will first be prompted to enter a "Minimum" figure, which will be the smallest permissible time leap (Figure 35). Type the figure of your choice and then press Return. If you wish, it can be as small as one period. *The program will not, however, allow you to enter a figure that is larger than one-third of the number of periods established in Setting #1, "Span of Game."* For example, if Setting #1 is currently 1999-1000 B.C. to the early 1000s (A.D.), a span of 26 periods in ***Time Navigator Around the World***, then you cannot enter a minimum time leap of more than 8 periods (26 + 3, rounded down to the nearest whole number).

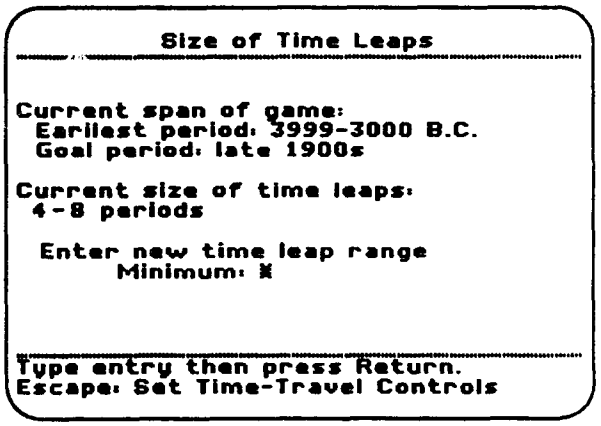


Figure 35

Next, you will be prompted to enter a "Maximum" figure, which will be the largest permissible time leap. Type the figure of your choice and press Return. *The program will not, however, allow you to enter a "Maximum" figure that is smaller than the "Minimum" figure you had just entered. And, once again, the program will not allow you to enter a figure that is larger than one-third of the time span covered by the years currently established in Setting #1, "Span of Game."*

In short, Setting #1 always takes precedence over Setting #2 whenever there is a potential conflict between the two.

Note: What if you set the time leap range you want using Setting #2 and *then* go back and change Setting #1? Or what if you've never even bothered with Setting #2 but you try to change Setting #1 in such a way that it conflicts with the original "default" of Setting #2?

No problem. *If you ever try to change Setting #1 in such a way that it causes conflict with the current Setting #2, you will receive the following message before you are allowed to complete the change:*

If you use this range of years, it will change the Time Leap values. Do you want to do this?

If you answer **No** to this question, the program will restore Setting #1 to the way it was before you had tried to change it, offering you another opportunity to set a new range of years. If, however, you answer **Yes**, the program will go ahead and change Setting #1 as you wanted but will also automatically adjust Setting #2 to conform with the requirements of Setting #1.

Keep in mind that Setting #2, "Size of Time Leaps," gives you some control over the program's level of difficulty. Setting relatively large time leaps (say, from 6 to 8 periods) makes ***Time Navigator Around the World*** *easier for students, whereas setting relatively small leaps (such as from 1 to 2 periods) makes the program more challenging.* (For more information about difficulty levels, see pages 39-40.)

Note: What if students have saved games before you make a change in the span of time setting? When students resume their games *after* you've made this change, what happens?

The only cases in which this would cause a conflict is if you've changed *the earliest period setting to a more recent period* or *the most recent period setting to an earlier period.* Let's say a student started a game with the setting from "400s B.C." to "Late 1400s." The student quit and saved the game at the period "Late 1100s." But then you use the Management Options to change the goal period to "Early 1100s." There's now a conflict between the period in which the student quit and saved and the period that you have now designated as the goal.

If you make this kind of change when there are saved games on the disk, the program will not allow students to resume games that conflict with your modifications. Those games will not appear in the on-screen saved game list. In order to avoid student confusion or frustration, you should probably inform students of your modifications and the fact that they may prevent resumption of certain saved games.

If you go back and modify the span of the game in such a way that saved games no longer conflict with that setting, students will once again be allowed to resume those games.

When you have finished using the "Set Time-Travel Controls" screen, simply press the Escape Key to return to the "Simulation Settings" menu.

Let's move on now to another way in which you can customize the program.

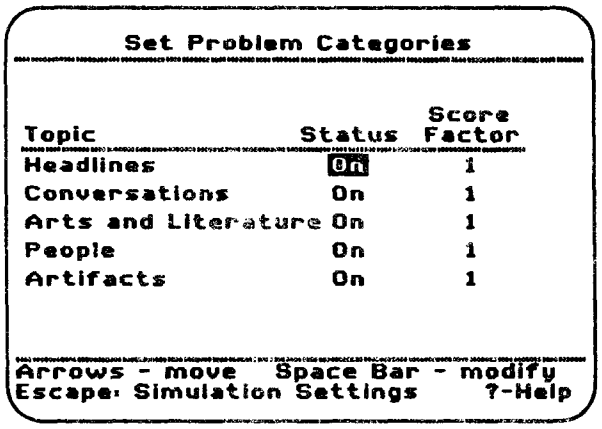


Figure 36

Select Option 2, "Set Problem Categories," from the "Simulation Settings" menu. The "Set Problem Categories" screen then appears (Figure 36).

This option allows you to designate the topic categories to which students will have access while using ***Time Navigator Around the World***, again enabling you to modify the simulation to conform more closely to your curriculum. If you have students with special, advanced interests in particular aspects of world history and culture (literature, the arts, etc.), you may find this feature particularly useful. In addition, if you feel that certain categories are more difficult for your students than others and therefore students should receive more points for correct answers in those categories, you can specify different "score factors" for various categories.

Management Options

Time Navigator Around the World is originally set to use all five of its topic categories: "Headlines," "Conversations," "Arts and Literature," "People," and "Artifacts." If you want your students to have access to all of these categories and for all of the categories to have equal score factors, then you don't need to do anything. But what if you wish to restrict access to only certain categories? For instance, let's say you're not interested in having your students work with "Arts and Literature" and "Artifacts." Notice that, on the "Set Problem Categories" screen depicted in Figure 36 (see page 23), all five of the categories are designated "on."

Use the Up- and Down-Arrow Keys to move to a category that you wish to turn off, such as "Arts and Literature." When the cursor is on the item that you want to change, press the Space Bar or the Return Key. The category that you chose is now designated "off." You can now move to another category and turn that one off in the same way. By the same token, if you want to "turn on" a category that is currently "off," simply move to that category and press the Space Bar or Return Key. That category is now "on."

Note: *The program will not let you turn off more than two categories at a time. In other words, at least two categories must be "on" at all times. If you try to turn off a third category, the program will ignore your attempts to do so until you turn another category back on, thus "making room" for a different category to be turned off.*

If you wish to have some topic categories "weighted" more than others for scoring purposes (which is relevant only when students are using the program at the Adventure Level), use the Right-Arrow Key to move the cursor to the "Score Factor" column and then use the Up- and Down-Arrow Keys to move through that column. When the cursor is on the number that you want to change, press the Space Bar or Return. The number now increases from 1 to 2, from 2 to 3, or from 3 back down to 1. A category assigned a score factor of 2 will score twice as much for an equivalent forward time leap as will a category given a score factor of 1. And a category given a score factor of 3 will score three times as much for an equivalent forward time leap as will a category with a score factor of 1. In this way, you can "reward" students for getting correct answers in those categories that you feel are more difficult than others. Note, however, that score factors only affect *correct* answers. Students are penalized the same number of points for equivalent backward time leaps in any category, regardless of the score factor assigned to it.

Note: *On the three-item selection screens in the main body of the **Time Navigator Around the World** program (such as Figure 6 on page 7), an indication of a category's score factor does not appear if the score factors for all five categories are equal. If, however, any category has been given a score factor different from that of any other category, the score factor will appear in the upper-right corner of the three-item selection screens.*

As already noted, ***Time Navigator Around the World*** is originally set with all five topic categories carrying an equal score factor of 1. You may, however, be interested in knowing how the program's designers view the comparative difficulty of the five categories. The "Headlines" and "People" categories seem to be the easiest. "Conversations" and "Artifacts" appear a little harder, but not very much so. "Arts and Literature" is generally considered most difficult. You might therefore consider using the "Set Problem Categories" option to assign score factors as follows: Headlines - 1; People - 1; Conversations - 2; Artifacts - 2; Arts and Literature - 3.

Of course, you should use your own judgment and experience to decide whether such settings are appropriate for your students. That's the reason, after all, for making it a Management Option.

If you have difficulty understanding how to use the "Set Problem Categories" screen, you can press the Question Mark (?) Key to see a help screen. For more information about using this option to modify program content, see pages 35 and 39-40.

Once you've finished modifying topic categories, press Escape to return to the "Simulation Settings" menu. From now until you change this setting, students will only have access to the topic categories designated "on" and, when they play at the Adventure Level, scoring in the various categories will be "weighted" as you specified.

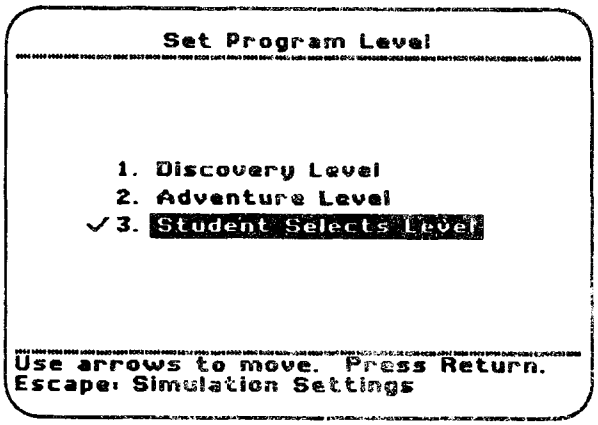


Figure 37

Soon after students start using an original, unmodified copy of ***Time Navigator Around the World***, they are given a choice of running the program at the Discovery Level (without scoring and most of the other "game-like" aspects of the program) or at the Adventure Level (with scoring and other motivational "game-like" features). If, however, you prefer that students *not* make that choice for themselves, you should select Option 3 on the Simulation Settings menu, "Set Program Level." You will then see the "Set Program Level" screen (Figure 37). A check mark appears next to the setting that is currently active.

If you want students to work exclusively at the Discovery Level, select Option 1. If you want them to work exclusively at the Adventure Level, select Option 2. And if you want them to choose for themselves which level to use, select Option 3 (the original "default" setting). After you have made your selection on this screen, press the Escape Key to return to the "Simulation Settings" menu.

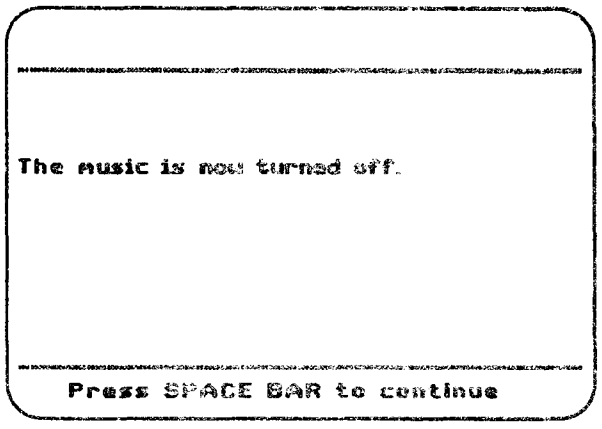


Figure 38

If you don't want your students to deal with the "Arts and Literature" topic category at all, you can use the previously described "Set Problem Categories" option to prevent access to it (see page 24). If, however, you want them to have access to that category but you *don't* want them to hear excerpts of melodies—perhaps because you want to maintain a relatively quiet classroom or computer lab—you should select Option 4, "Turn Music Off," from the "Simulation Settings" menu. A screen similar to Figure 38 then appears, informing you that the music has now been turned off.

Once the music has been turned off, Option 4 on the "Simulation Settings" menu will read "Turn Music On." If you select this option, you will turn the music back on in the "Arts and Literature" category. In this way, Option 4 on the "Simulation Settings" menu functions as a "toggle switch."

Note: *Turning the music on or off is a different operation from turning the sound on or off. Most MECC products have a standard sound control command,* ***Control-S****, and* ***Time Navigator Around the World*** *is no exception. To turn off the "sound effects" in* ***Time Navigator Around the World****—that is, all sounds except the melodic excerpts in the "Arts and Literature" category—hold down the Control Key and press the S Key at any time during program operation. If you don't want any sound or music in* ***Time Navigator Around the World*** *whatsoever, use both the "Turn Music Off" option and* ***Control-S*** *to eliminate all sound and music. Like the "Turn Music Off" option,* ***Control-S*** *is a toggle switch. If the sound effects are currently turned off, pressing* ***Control-S*** *will turn them on again.*

The fifth option on the "Simulation Settings" menu is "Use B.C.E." ***Time Navigator Around the World*** provides educators with the option of having "B.C.E." (Before the Common Era) as opposed to "B.C." (Before Christ) appear in the program. Many non-Christians and multi-culturally sensitive Christians as well as an increasingly large number of historians prefer the B.C.E. designation to B.C. Again, this option functions as a toggle switch. Selecting "Use B.C.E." automatically replaces all of the "B.C." dates to "B.C.E." The option then changes to "Use B.C." so that the next time it's selected, it will change all of the "B.C.E." dates back to "B.C."

Note: For the same reasons that some people find B.C.E. preferable to B.C., those same persons prefer C.E. (Common Era) to A.D. (*Anno Domini*, Latin for "in the year of our Lord"). But since in ***Time Navigator Around the World*** any year that doesn't have B.C. or B.C.E. after is meant to be interpreted as being A.D./C.E.—which is, after all, standard practice in historical reference works—neither A.D. nor C.E. appear in the dates and are therefore irrelevant to the functioning of this Management Option.

To restore all of the simulation settings to their original "default" status, select Option 6, "Restore Original Settings," from the "Simulation Settings" menu. Because of the somewhat "drastic" nature of this change, the program will ask you to confirm this decision (Figure 39). Responding **Yes** will restore the original settings and return you to the "Simulation Settings" menu. Responding **No** will also send you back to the "Simulation Settings" menu, but without making any changes in the current settings.

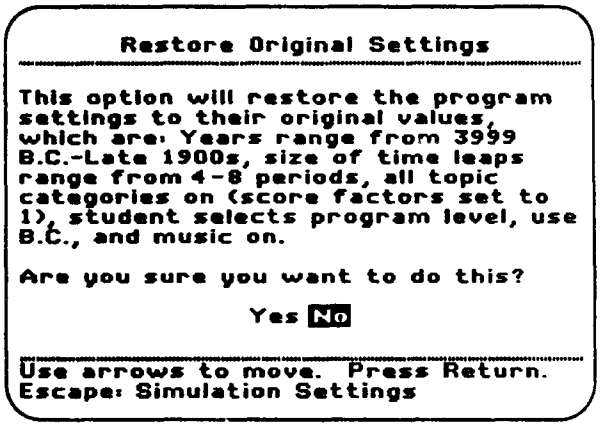


Figure 39

These are the original simulation settings for ***Time Navigator Around the World***:

Span of game:	3999 B.C. – Late 1900s
Time leaps:	4 – 8 periods
Topic categories:	All five "on" with equal score factors
Program level:	Students select level
Music control:	On
B.C./B.C.E.:	B.C. used

When you've finished using "Simulation Settings" to modify the program, pressing the Escape Key while you're viewing the "Simulation Settings" menu returns you to the "Management Options" menu.

Management Option 2, "Hall of Fame Options"

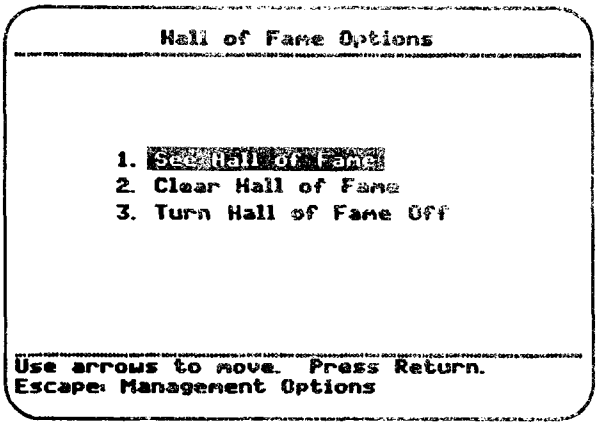


Figure 40

"Hall of Fame Options" allow you to see and/or clear the ***Time Navigator Around the World*** "Hall of Fame" as well as to turn it on or off as a feature.

Select "Hall of Fame Options" from the Management Options menu. The "Hall of Fame Options" menu then appears (Figure 40).

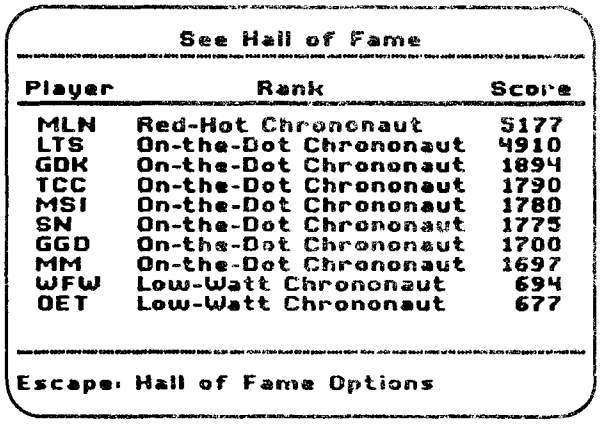


Figure 41

Hall of Fame Option 1, "See Hall of Fame," provides teachers with a convenient way of examining the current Hall of Fame (which lists the initials of the current "Top Ten" list of scorers) without having to go back to the main menu and using the "See Hall of Fame" option there—which is the way students would access it. The resulting screen is the same in each case (Figure 41).

After you've finished examining the Hall of Fame, press the Escape Key to return to the previous screen—back to the main menu if you accessed the Hall of Fame from the main menu, but back to the "Hall of Fame Options" menu if you accessed the Hall of Fame from there.

If you want to erase all of the information currently stored in the Hall of Fame, select Option 2, "Clear Hall of Fame," from the "Hall of Fame Options" menu. The "Clear Hall of Fame" screen then appears (Figure 42).

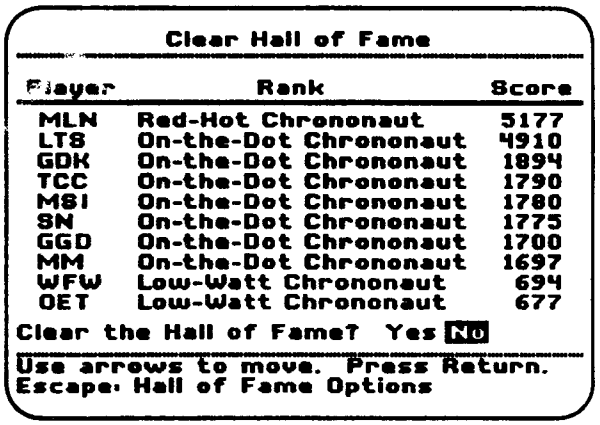


Figure 42

Because of the drastic, permanent nature of this option, the program asks you to confirm whether you indeed wish to erase the current Hall of Fame. Answer Yes or No and press Return. You then return to the "Hall of Fame Options" menu with the Hall of Fame either erased or intact, depending on how you answered the previous question.

If you don't want the Hall of Fame to be a feature of ***Time Navigator Around the World*** at all, you should select Option 3, "Turn Hall of Fame Off," from the "Hall of Fame Options" menu. A screen similar to Figure 43 then appears, informing you that the Hall of Fame feature has now been turned off. If you turn the Hall of Fame off, it will not appear in ***Time Navigator Around the World*** until you turn it on again. When the Hall of Fame feature is turned off, the "See Hall of Fame" option does not appear on the main menu. Instead, "End" becomes main menu Option 3 rather than Option 4.

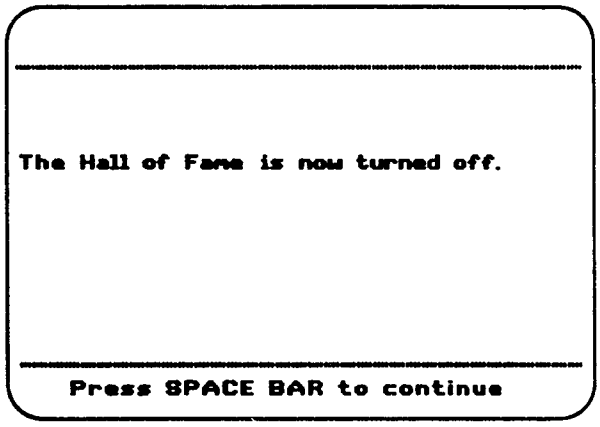


Figure 43

After the Hall of Fame has been turned off, Option 3 on the "Hall of Fame Options" menu will read "Turn Hall of Fame On." If you select this option, you will turn the Hall of Fame feature back on. In this way, Option 4 on the "Hall of Fame Options" menu functions as a toggle switch.

When you've finished with the Hall of Fame options, press Escape to return to the "Management Options" menu.

Management Option 3, "Saved Game Options"

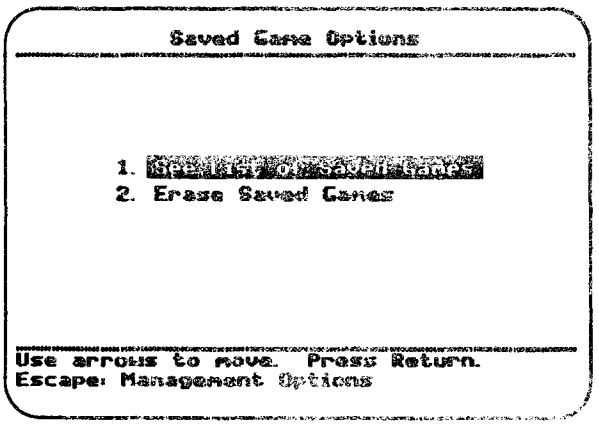


Figure 44

"Saved Game Options" allow you to see the list of saved games and/or to erase the entire group of games. Select "Saved Game Options" from the Management Options menu. The "Saved Game Options" menu then appears (Figure 44).

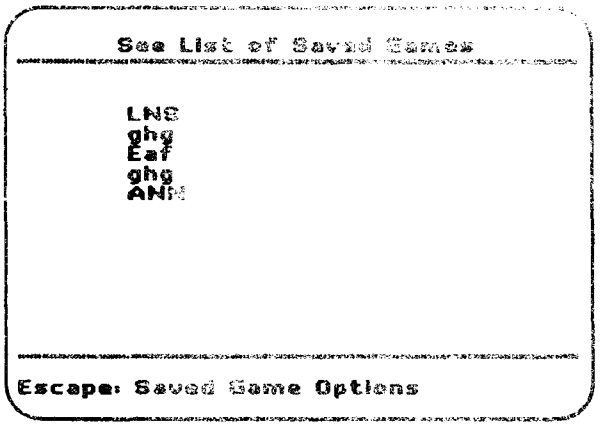


Figure 45

If you want to see the current list of saved games, select Option 1, "See List of Saved Games," from the "Saved Game Options" menu. The "List of Saved Games" screen then appears (Figure 45). It lists the initials of the students who have incomplete games currently saved on the *Time Navigator Around the* ***World*** disk. This list is arranged in order of saving. In other words, the first set of initials belongs to the student whose saved game is the oldest one currently stored on the disk. The last set of initials belongs to the student whose game is the one most recently saved.

Up to forty games can be saved at a time. If there are more saved games than can fit on one screen, you can use the Space Bar or M Key (for "More") to scroll through the list. When you've finished looking at the saved game list, press the Escape Key to return to the "Saved Game Options" menu.

If you wish to erase all games currently saved on the disk—such as at the beginning or end of a semester or a school year—select Option 2, "Erase Saved Games," from the "Saved Game Options" menu. The "Erase Saved Games" screen then appears.

Because of the drastic, permanent nature of this option, the program asks you to confirm whether you indeed wish to erase the current list of saved games. Answer Yes or No and press Return. You then return to the "Saved Game Options" menu with the list of saved games either erased or intact, depending on how you answered the previous question.

When you've finished using the "Saved Game Options," press Escape to return to the Management Options menu.

Management Option 4, "Printer Support"

Printing is an option in ***Time Navigator Around the World***. If a printer is available and you wish to allow students to print out copies of their timelines (see page 16), you can use the fourth Management Option, "Printer Support," to prepare your printer. For information about printing and using the "Printer Support" Management Option, see "Using a Printer with This Courseware" on pages 54-55.

Once you have finished using the "Printer Support" options, you can return to the Management Options menu by pressing the Escape Key while you are viewing the "Printer Support" menu.

Note: *When you have finished using the Management Options, you can return to the main menu by pressing the Escape Key while you are viewing the Management Options menu.*

Use in an Instructional Setting

Time Navigator Around the World can be used in a variety of ways in order to meet the needs of different teachers, students, and classroom environments. To make the best use of ***Time Navigator Around the World*** in different situations, however, teachers must consider their students' needs, interests, and abilities, their own curriculum goals as teachers, and their particular classroom or school resources.

Independent Use by Individual Students

In some ways, the ideal situation for using ***Time Navigator Around the World*** is to have one computer for every student. Students could therefore use ***Time Navigator Around the World*** independently, working at their own individual rates and employing their own individual strategies and investigative styles. Of course, this is seldom a realistic scenario. More often than not, teachers—and especially social studies teachers—do not have access to as many computers for their students as they would like. Still, if you and your students are fortunate enough to have this kind of ready access to computers—perhaps in a computer lab setting—there are several things you can do to maximize the educational value of ***Time Navigator Around the World*** for each student.

At any time after your students have finished studying world history (either "all" of it or for a particular span of time), you may wish to use ***Time Navigator Around the World*** for several days or, sporadically, for several weeks as a kind of "summary activity." Make sure every copy of ***Time Navigator Around the World*** that your students will be using is set to cover the appropriate periods of time.

(Keep in mind that if you want to focus on U.S. history and culture, you should use the original ***Time Navigator*** and its "prequel," ***Time Navigator Leaps Back***. Together, these two programs cover American history and culture from 1776 through the mid-1980s.)

Depending on the kinds of material you've covered as a class, you may wish to modify the topic category settings, focusing exclusively on "Headlines," "Conversations," and "People" (the three most "traditionally historical" categories) or using additional categories as well.

Note: *If you're not sure how to check and modify program settings, see the section of this manual entitled "Management Options," beginning on page 19.*

Use in an Instructional Setting

You might also periodically use ***Time Navigator Around the World*** as a summary activity on a unit-by-unit basis. For instance, if you've just completed a unit on the the Middle Ages, you could set your copies of ***Time Navigator Around the World*** to cover only from the early 500s to the late 1400s. Or if your units are more "topic-based" and you've just completed a unit on inventions and technological developments in the "modern" age, you might set the years from the early 1500s to the late 1900s and set the topic categories to just two or three, making sure to include "Artifacts."

If you're interested in going so far as to "customize" ***Time Navigator Around the World*** to each individual student and then using it as an enrichment activity, be sure first to spend some time familiarizing yourself with each student's interests and needs. If you find that one particular student is especially interested in literature, you should be sure to make "Arts and Literature" one of the topic categories available. If a student is particularly interested in inventions or fashions, the "Artifacts" category should be available. This kind of individualization would serve greatly to increase student motivation and enjoyment in ***Time Navigator Around the World*** in particular and in the subject of history in general.

The program's "Adventure Level," with its scoring feature and special challenges, is perfect for students using the program individually and independently. This is also a good time to use the "Hall of Fame" feature. While some teachers may have misgivings about the competitive implications of scoring and the Hall of Fame, many students nevertheless find these things highly motivating. Still, you should keep your students' individual personalities in mind. Let those of your students who are highly motivated by competition go ahead and use the Adventure Level and the Hall of Fame. But for those of your students for whom this kind of competition is intimidating and counter-productive, you may wish to tell them to work only at the "Discovery Level." In addition, you may want to disable the Hall of Fame on their copies of the program.

Even if the amount of time that individual students can use the computer at any given "sitting" is very brief, don't forget that the program's ability to save games allows its use to be spread out over an extended period of time. If necessary, a student can begin a ***Time Navigator Around the World*** simulation on Monday, continue it on Thursday, and finish it up the following Tuesday.

Cooperative Use by Small Groups of Students

You may wish to divide your classes into small groups of students who would then use ***Time Navigator Around the World*** in cooperative-learning activities. It is probably best to create groups consisting of three students each, although the size of your groups must necessarily depend upon the size of the class and the number of computers available. Ideally, groups should be composed of students with varying ability levels, ethnic and social backgrounds, gender, and interests. Perhaps you can assign "team names" to the groups. Since the focus of ***Time Navigator Around the World*** is on world history and culture, perhaps the names of major historical figures (such as "Alexander," "Kublai Khan," and "Joan of Arc") or civilizations (such as "Aztec," "Ghana," and "Greek") would do nicely.

There are many different ways students can work together in groups. One method is for each member of the team to have a specific assigned role during any particular game, although they can change these roles every so often so that everyone has the opportunity to perform each role. For example, you might assign the following roles:

"Summarizer"

- summarizes information obtained in order to help the team make decisions
- encourages the team to remain on task during discussions
- keeps track of information related to the "Headlines" category

"Presenter"

- presents team findings and use of strategies to the whole class
- encourages team members to participate in discussions
- keeps track of information related to the "Conversations" and "People" categories

"Explorer"

- operates the keyboard as the team selects which category of information to explore
- seeks team consensus in deciding which category to explore and which item to select as the best response
- keeps track of information related to the "Arts and Literature" and "Artifacts" categories

Teams can function democratically, based on majority vote, or they can use the consensus model, in which team members discuss and ultimately agree on any decision they make. Whenever disagreements arise within a team as to which choice to make, students should be encouraged to discuss their opinions and reasoning in an open yet thoughtful, logical manner.

Be sure to inform students how much time they have to work at the computer. Explain that you will be circulating among the teams to observe how they're doing. You will be focusing on two specific behaviors: (1) you want to see everyone contributing their ideas and participating in the discussions, and (2) you want to be sure that every team reaches agreement on any decisions they make. After the activity has been completed, discuss with them the behaviors you saw them use and how the teams worked. Encourage them to share their own observations about their group interaction as well as about the program itself and the knowledge of world history and culture they gained.

You may want students to use reference materials—such as history textbooks, encyclopedias, and almanacs—as they use the program. If you decide to allow teams to use such reference works, make sure there's an appropriate division of labor, perhaps with different students using different books or being responsible for different types of information.

You may or may not want different teams to compete with each other. If you like the idea of competition among the teams, allow them to play at the Adventure Level with the Hall of Fame feature active. Then they can compare scores, which many students find motivating, especially in a team environment. On the other hand, you may not want teams to play competitively, in which case they should use ***Time Navigator Around the World*** at the Discovery Level.

Just as in the case of students working individually, consider using the Management Options to modify ***Time Navigator Around the World*** to conform with your current lesson plans or to the particular abilities, interests, or needs of different student groups.

Collective Use by a Teacher with an Entire Class of Students

Of course, many teachers have access to only a single computer for their entire classroom. Fortunately, recent developments in large-screen projection devices—also called "imaging systems"—have greatly enhanced the potential of educational computing in the single-computer classroom. Many of these imaging systems work in conjunction with an overhead projector. If you have access to an imaging system that is compatible with your classroom computer, you can use ***Time Navigator Around the World*** quite effectively with your classes.

Before class, use the Management Options to modify the program as you see fit. Once in class, explain the simulation and its goals if the students aren't already familiar with the program. Then, with you, the teacher, controlling the computer as "group leader," begin the simulation.

Note: *When you run the simulation using an imaging system, you should probably choose to play at the Discovery Level so that you won't have to worry about storms, bumps, fuel, or scoring. Also, since some imaging systems have trouble displaying detailed animation clearly, the Discovery Level is preferable because the animation is less important there than it is at the Adventure Level.*

Once you find yourself at the "Shore View," make sure everyone knows what the current period is. Then solicit suggestions from students as to which topic category to pick. You may want to take a voice or hand vote, or you may call on a particular student to decide. Select the category and then, when the three choices appear, read them out loud to the class. Ask students which item they believe to be the most recent. Try not to let one or two advanced students monopolize the discussion. Don't forget to use the M Key/Space Bar "More information" feature, especially if you sense uncertainty among the students. If you sense any disagreement among students as to a choice, encourage them to discuss it. Don't dismiss any suggestions outright, but rather ask students to talk with you and each other about their suggestions.

Whenever students indicate a preference for a particular choice, ask them to explain their rationale. Ask other students whether they agree with this choice and reasoning. If students can cite specific dates for various events or items, allow them to offer that as "evidence." You may want students to use their textbooks to search for evidence in support of their conclusions. Also, encourage students to use *logic* in their disucssions. For instance, if a student says "Well, the Muslims *couldn't* have conquered the Indus Valley before Muhammad's triumphal entry into Mecca!" ask him or her to explain the logic behind that statement. It may seem obvious to you and to the student who said it, but perhaps not to many of the other students.

After several minutes of discussion, settle on one choice by whichever means you deem appropriate—majority vote, temporarily "appointing" a student decision-maker, or whatever. *Then go with it,* even if you know the decision to be incorrect. Once you've made your selection, make sure everyone notes the subsequent screen that reveals the "answers." Point out whether the decision was the "right one" or not.

When you go to the "Shore View" for a new period, repeat this process of soliciting student suggestions, discussions, and decisions. As "group leader," you may occasionally decide to "overrule" students and make your own decisions about topic categories or choices, but resist the temptation to do this often. Nothing will cause your students to lose interest faster than if they sense you're not taking their participation and contributions seriously. If you run out of time, don't worry. Remember that you can save the game and, if you feel the activity was successful and productive, resume it during your next class session.

When you finish the simulation by reaching the "target period," ask students to discuss the activity. Ask them to cite specific things they learned. Which topic categories were the easiest and which were the most difficult? Why were some topics more difficult than others? Which topics were the most interesting or enjoyable? Have they seen any movies or TV shows about some of those events? Have they read any of the books cited in the program or have they seen any of the artwork? Try to establish a connection in their minds between "real life" and history—that the current events of today are the historical events of tomorrow.

Use in Classes Other Than History

Although ***Time Navigator Around the World*** is designed primarily for use in world history classes, it has applications in other types of classes as well. Modification of the program through the use of Management Options (see pages 19-26) may be desirable.

Minority Studies

Every topic category in ***Time Navigator Around the World*** contains items of interest to teachers of various Minority Studies programs, although some more so than others. ***Time Navigator Around the World*** contains a great deal of information about "non-western" civilizations and the contributions of women and various minority groups to world history, society, and culture.

English

English teachers can use ***Time Navigator Around the World*** to develop their students' knowledge of English and world literature and its relationship to other aspects of history and culture. Make sure that the topic category "Arts and Literature" is active. Also, other categories can help students place literature in a broader context. In addition, ***Time Navigator Around the World*** can serve as the basis for interesting writing assignments. Students could write about their "travels through time" and the various people, events, or artifacts they encountered. And if you have students who need high-school-level reading practice, the "More information" screens in ***Time Navigator Around the World*** provide useful reading exercises.

Music

While music does not play as great a role in ***Time Navigator Around the World*** as it does in the two previous ***Time Navigator*** programs (the original ***Time Navigator*** and ***Time Navigator Leaps Back***), music teachers who are focusing on the history of music can nevertheless use the program to develop their students' knowledge of that field and its relationship to other aspects of world history and culture. Music teachers should make sure that the topic category "Arts and Literature" (which contains several references to musical compositions), among others, is active and that the melodic excerpts feature of the "Arts and Literature" category is "turned on" as well. The use of other categories could help students place music in a broader historical context.

Science

Science teachers who are interested in developing their students' awareness and knowledge of the history of science and technology may find ***Time Navigator Around the World*** very helpful. Make sure that the topic category "Artifacts" (which contains, among other things, assorted references to inventions, scientific discoveries, and technological achievements) is active. Also, the use of other categories (especially "People," which includes many references to scientists and inventors) can help students place science and technology in a broader context.

Using Computer Software in a Thinking Skills Environment

Teachers are faced with the tremendous task of preparing today's students for tomorrow's world—a world characterized by change in an information-rich environment. Thinking skills are at the heart of this thriving, changing environment, for these are the behaviors students must practice in school and continue to apply for the rest of their lives.

It wasn't long ago that thinking skills were considered exclusive to gifted and enrichment classes. Today, however, thinking skills are viewed as an essential component of the total school curriculum. Developing these skills is the goal of each individual discipline. Many educators have, in fact, come to view thinking skills as perhaps the most basic of the basic skills because they facilitate the acquisition of all other learning.

At MECC, we view computer software as a vehicle for fostering students' thinking. Our products are curriculum-based, with thinking skills as a thread within subject areas. This provides an environment with many opportunities for teachers to highlight and reinforce thinking skills.

We believe teachers play a critical role in determining the classroom environment for thinking. Naturally, many teachers have taught thinking skills and will continue to do so using a variety of strategies. Our commitment is to provide teachers with the materials that help them do their job well: high-quality software that promotes the application of thinking skills.

Our approach to thinking skills reflects what both research and effective classroom practice has shown. That is, the approach that is most effective and appeals to most teachers is one that infuses thinking skills into existing content areas. Educators have told us they are interested in thinking skills as a method used in the instruction of a topic, not as a subject. By infusing thinking skills into existing content areas, MECC products integrate easily into teachers' curricula while providing a rich environment for students to practice skillful thinking. We strive to meet the challenge teachers face in promoting the skills that students need.

If schools are to integrate the teaching of thinking with regular academic instruction, they need to know what aspects of thinking to teach. After exploring the research that has been done in the area of thinking skills, MECC has chosen as a base the *Dimensions of Thinking* framework, published in 1988 by the Association of Supervision and Curriculum Development (ASCD). We chose this framework because it pulls together research and models from a variety of sources and brings the theory to the classroom level, applying it to that environment. In addition to knowing the subject matter that is covered, teachers now can see the specific thinking skills that are challenged within a product.

Pages 37-38 highlight ways in which teachers can use ***Time Navigator Around the World*** to promote thinking skills with their students. The following pages provide examples of how ***Time Navigator Around the World*** relates to the ASCD core thinking skills framework. Although only one thinking skill per category is correlated to a specific part of the product, each skill can be practiced on many levels and in many aspects of the product.

We realize the importance of thinking skills in the curriculum. We believe it is essential that students be taught thinking skills so that they have the tools to understand the past, deal with the present, and prepare for the future. We are confident that you will find ***Time Navigator Around the World*** of considerable value in your classroom as you foster student thinking.

A Framework for Thinking

The components used in thinking are referred to as *core thinking skills*. This framework defines those skills that appear in the repertoire of the model learner. Each skill selected is documented in research as important to learning or thinking, is teachable, and is valued by educators as important for students to learn.

The core skills of the ASCD framework are listed and defined below with examples of applications within ***Time Navigator Around the World.*** The skills are neither discrete nor hierarchical. In fact, individual skills draw on other skills and can be used repeatedly in the thinking process. The selected examples are by no means exhaustive, but rather highlight ways in which these thinking skills are used with ***Time Navigator Around the World.***

Source: *Dimensions of Thinking*, Association for Supervision and Curriculum Development (ASCD), 1988.

Definition of Core Thinking Skills Categories	Core Thinking Skills Components	Program Application
Focusing Skills allow students to attend to selected pieces of information and to ignore others. Focusing occurs when students sense a problem, an issue, or a lack of meaning.	**Focusing Skills** • Defining Problems • Setting Goals	Students are given the task of "navigating" their way toward a target period. By examining the "More information" provided about each possible selection, students distinguish useful information from data that will not help them reach their goal.
Information-Gathering Skills involve obtaining information and clarifying issues and meanings through inquiry.	**Information-Gathering Skills** • Observing • Formulating Questions	As students work through the time-travel scenario, they will likely formulate questions that relate to the topics being studied. Students can use the "More information" feature to collect relevant information and apply it to the problem at hand.
Remembering Skills are those activities or strategies that students consciously engage in to store and retrieve information from long-term memory. Activating prior knowledge falls under this category.	**Remembering Skills** • Encoding • Recalling	As students select the most recent items from the triad presented in the program, they draw upon facts they have acquired from previous classwork and textbooks to make appropriate choices. Simultaneously, students using the program add to their store of knowledge.

Use in an Instructional Setting

Definition of Core Thinking Skills Categories	Core Thinking Skills Components	Program Application
Organizing Skills are used to arrange information so that it can be understood or presented more effectively.	**Organizing Skills** • Comparing • Classifying • Ordering • Representing	The central activity of ***Time Navigator Around the World*** requires that students consider the historical sequencing of events. This is an organizational activity in which students must conceptually compare items and arrange them in their correct chronological order.
Analyzing Skills are used to clarify existing information by examining parts and relationships. Through analysis, students identify and distinguish components, attributes, claims, assumptions, or reasoning.	**Analyzing Skills** • Identifying Attributes and Components • Identifying Relationships and Patterns • Identifying Main Ideas • Identifying Errors	Students establish a relationship between history and current events. They might consider how styles of music have changed through the years. What is the relationship between musical style and other kinds of style, such as literature or fashion?
Generating Skills involve using the students' prior knowledge to add information beyond what is given. Connections between new ideas and prior knowledge are made as new information and ideas are recast into new structures.	**Generating Skills** • Inferring • Predicting • Elaborating	Students combine their prior knowledge with information they glean from the program. As they focus on a particular category, they can make predictions as to why a certain item or event was important and how it might have affected world society and culture.
Integrating Skills involve putting together the relevant parts or aspects of a solution, understanding, principle, or composition and incorporating this integrated information into a new understanding.	**Integrating Skills** • Summarizing • Restructuring	As students complete the simulation, ask them to discuss the strategies they used. Have them consider how they might restructure their journey based on integrating the information they have already acquired.
Evaluating Skills involve assessing the reasonableness and quality of ideas.	**Evaluating Skills** • Establishing Criteria • Verifying	Students engage in an on-going evaluative process as they verify the choices they make and assess the success of their strategies.

Reading and Difficulty Levels

Time Navigator Around the World is designed for use primarily by students in junior and senior high school. Because of the diverse nature of the information presented in the program, however, different parts of the program are better suited to more advanced students than others. With regard to reading levels, the on-screen text has been tested with the following results:

Type of on-screen text	*Average estimated reading level*
Basic informational screens	Grade 7
"Conversations" category	Grade 6
"People" category	Grade 6
"Headlines" category	Grade 9
"Arts and Literature" category	Grade 9
"Artifacts" category	Grade 9

Judged on the basis of readability, we can offer the following guidance:

- ***Time Navigator Around the World*** in its entirety is appropriate for senior high students whose reading skills are at least equivalent to their grade level.

- The "More information" screens for the "Headlines," "Arts and Literature," and "Artifacts" categories may prove difficult for senior high students whose reading skills are significantly below their grade level.

- These same three categories may prove challenging for average junior high students, although "advanced" junior high students should have no problem with them.

- Junior high students whose reading skills are below their grade level will probably have difficulty with ***Time Navigator Around the World*** in general.

As for the question of difficulty levels of ***Time Navigator Around the World*** based upon factors other than reading skills, teachers can use Management Options (see pages 19-26) to modify the program in several ways to make it easier or more challenging, however appropriate. For example, if you feel your students are so unfamiliar with particular topics, such as "Arts and Literature," as to render those categories virtually useless even for the purpose of "discovery" activities, then you may be well advised as to restrict access to those topic categories (see pages 23-24). On the other hand, you might "reward" students for correct answers in those more difficult areas by specifying higher "score factors" for those categories (again, see pages 23-24). But there are also other ways in which you can modify ***Time Navigator Around the World*** to make it easier or more difficult.

- *To make **Time Navigator Around the World** simulations easier*, use the "Time Leap" controls to set the program for large time leaps—say, from 8 to 12 periods. In order to accommodate these large time leaps, the simulation will need to cover a large time span, so you should be sure that the program is also set to its widest possible range of years—from 3999 B.C. to the late 1900s (which is the original "default" setting)—or at least very close to it. (See pages 19-23 for instructions about adjusting the range of years and the size of the time leaps.) The effect of these settings will be two-fold: the distinctions among different choices faced by the students will more likely be greater and thus more recognizable; and the simulation itself is more likely to be shorter in duration.

Use in an Instructional Setting

- *To make **Time Navigator Around the World** simulations much more challenging,* use the "Time Leap" controls to set the program for small time leaps—say, from 1 to 3 periods. This will have the effect of, in general, making the distinctions among different choices faced by students less immediately discernible. The time span of the simulation doesn't necessarily need to be changed since relatively small spans of time will accommodate small time leaps as well as large spans of time. Of course, the combination of very small time leaps with a very large range of years would result in very long games. So, in order to hold the total length of the simulation down, it might be wise to reduce the range of years when you similarly reduce the size of the time leaps. For example, if you have a time leap setting of from 1 to 3 periods, a good time span of the game would be 10 or 15 periods, such as from 3999 B.C. to the early 100s or from the early 1300s to the late 1900s. (Again, see pages 19-23 for instructions.)

Additional Activities

Here are some suggestions for additional activities you might conduct in class or offer as assignments before, during, and after using ***Time Navigator Around the World.***

*Before Using **Time Navigator Around the World***

- Have students go to the library and find old newspaper headlines (perhaps on microfilm) from at least ten years ago. Ask them to write down one or two headlines and bring them back to class. Compare students' headlines and involve the class in a discussion as to which headline represents the biggest "scoop." In other words, what was the biggest news story? Also, are there any headlines that may have seemed like big news at the time but which have turned out to be of relatively little historical interest?

  Then select several of the more "significant" headlines and have students try to arrange them in chronological order. Which came first? Which is most recent? Make sure students understand that this latter question—"Which is most recent?"—is at the heart of the upcoming ***Time Navigator Around the World*** activity.

- Devote several class periods to special topics, such as world literature, inventions, and/or music. For instance, if you were focusing on literature, you might talk about the lives and works of some important writers, such as Sophocles, Virgil, Omar Khayyam, Dante, Chaucer, Cervantes, Shakespeare, Milton, Monzaemon Chikamatsu, Austen, Tolstoy, Eliot, and Tutuola. Perhaps you can read novels, short stories, plays, or poems by one or more of these authors or view a movie based upon one of their works.

  Then discuss with students the kinds of themes these writers were interested in. What social, philosophical, and/or moral issues were they addressing? What symbols or other literary techniques did they use to achieve their goals? Then go ahead and use ***Time Navigator Around the World***, making sure that "Arts and Literature" is one of the active topic categories.

- Discuss with students the fantasy concept of time travel. If they could go back to any period in human history for a day, which would they choose? What historical events would they like to witness? Which historical figures would they like to meet and talk to? What kinds of risks might be involved in time travel?

  Then consider the scenario of going back into the past but *not* knowing where (or "when"). If students wished to figure out the period they were in, how would they go about doing this? What if they couldn't find a calendar and didn't want to make people think they were crazy by asking them outright what year it was? If students were to "eavesdrop" on everyday conversations, what clues would they listen for in order to determine the year? What would they look for on the streets or in the markets?

*While Using **Time Navigator Around the World***

- Ask students using ***Time Navigator Around the World*** to write down the names of three or four people they "encounter" during their historical journeys, yet whom they've never heard of before. These could be monarchs, religious figures, authors, composers, inventors, scientists, painters, architects, philosophers, explorers, military figures—whomever! Be sure they also write down what they learned from the program about these people. What did they do? In which period(s) did they appear in the program? Why are they important?

  Then have students choose one of these people as the subject of a written or oral report. ***Time Navigator Around the World*** provides a few details about these people and their significance, but such reference materials as history textbooks, encyclopedias, biographical dictionaries, and other library books can provide a great deal more information.

- Ask students to do the same thing for something other than a person, such as a book, artwork, or artifact. Why is it important? Was its importance generally recognized when it first appeared or has recognition only come with time? Or, by contrast, was it quite important *then* but not so important now? Was it especially innovative, influential, or popular? In which ways did it affect world society and culture?

- Have students talk in class about the strategies they use in playing ***Time Navigator Around the World.*** In trying to determine which item is most recent, what do they look for? What do they pay closest attention to? Are they taking advantage of the "More information" feature? Does it help? How do they use logic? (For instance, "The first headline is about the 'Glorious Revolution' that deposed James II, and I know that took place before the American Revolution, which is mentioned in the third headine. The second headline talks about Napoleon, who became emperor of France after the French Revolution, which was influenced by the American Revolution. So that means the *second* headline, the one about Napoleon, *must* be the most recent!")

  Also, what other types of strategies do students use? Do they always proceed with their first choice of topic category, or do they sometimes "back up" to the "Shore View" and pick another category if the first set of choices wasn't to their liking? Does this prove advantageous? If students are playing for points (that is, at the Adventure Level), do they ever make "incorrect" choices on purpose in order to go back farther in time? Do they ever intentionally hit storms or bumps in order to be hurled off-course? If so, why? Is it ever to their advantage? What risks are involved? After this discussion, allow students to go back and use ***Time Navigator Around the World*** some more. Do students seem to perform better now that they've had a chance to talk about strategies?

Use in an Instructional Setting

*After Using **Time Navigator Around the World***

- Have each student conduct research to become the "class expert" on different periods of world history. Textbooks, encyclopedias, and almanacs will serve as valuable reference works. Then, on a particular day, have each student briefly report to the class in the role of a person actually living in that period. (Perhaps the presentations should be made in chronological order.) Students could talk about the "current" news stories that interest them most, the things they're most worried about, the challenges they face, the contemporary public figures who are their own personal heroes, the contemporary books or artwork they enjoy the most, and so on. You might also have students adopt the roles of persons living in different parts of the world during certain periods. For instance, some students might describe events from the perspective of Europeans while others might assume the perspectives of Asians, Africans, or Native Americans.

- Discuss the kinds of information students encountered in ***Time Navigator Around the World*** for each period. Did this information help students get a better idea about what life was like in the past? Did the time-travel scenario help them obtain a better sense of the "flow" or sequence of history? What additional types of information might have been useful in helping students to achieve these goals?

  Then have students collect similar pieces of information that are *not* mentioned in ***Time Navigator Around the World***—perhaps even for the *current* year. What are the biggest "headlines" of the year? The kinds of things people would talk about? The fashions? The most important literary works, musical compositions, and technological achievements?

- While using the program's "Conversations" category, students may have encountered some differences of opinion between the two "speakers." Obviously, everyday people in the past had different views about current events and issues, just as they do today. Discuss in class some of the historical controversies that "ordinary people" might have had disagreements about during various periods. To take just a few examples: whether Socrates should have been condemned to death; whether Rome should change from a republic to an autocratic empire; whether a woman, Suiko, should become the empress of Japan; whether it was a good or bad thing that the Aztec Empire was destroyed by the Spanish conquistadors; whether Mary, Queen of Scots, should be executed; whether the European colonization of Australia was, overall, a positive occurrence or a negative one; and so on.

  Perhaps students would like to assume opposing roles in one or more debates about some of these topics. Have students conduct their research and think about these topics as though they themselves were living at the time when those issues were most prominent. Have them assume the roles of people living at that time as they conduct their in-class debates. Afterwards, you may wish to discuss whether there are always "winners" and "losers" or even "rights" and "wrongs" in such debates.

- When students use the "More information" feature in the program's "Headlines" category, they see a "front page" of *The Period News*. This provides a headline and a brief one-paragraph "news story" from a particular period. As a class project, you might consider creating a *Period News* front page of your own. Pick a particular period in world history, have students do research, and have them select what they feel to be the five or six biggest news stories of that period. Decide on some good headlines, write brief news stories, and then put them together to resemble the front page of a newspaper, either on mimeographed or photocopied sheets or in large-scale form on a bulletin board. You may even be able to include some photographs or other illustrations!

Time Navigator Around the World Variations

Here are some ideas for other ways in which you might use ***Time Navigator Around the World*** with students:

- Have students play and compete with each other at the Discovery Level, with the object of seeing who can reach the target period in the fewest "turns." Students should count their number of turns along the way, but in case they lose track or forget, the "Category Summary" screen and the printable "timelines" at the end of the simulation will provide a record of students' attempts.

- Play ***Time Navigator Around the World*** "in reverse." Working at the Discovery Level, have students first get as close as they can to the target without actually "hitting" it. Then have them try to go back as far in the past again as they can, with the goal of reaching the *earliest* period (3999-3000 B.C. or whichever other period you may have set). In other words, on the three-item selection screens, students should always try to choose the *earliest* item, *not* the most recent one.

- Set a specific, relatively brief time limit—perhaps just ten or fifteen minutes—on students' use of ***Time Navigator Around the World*** during one class period. At the Discovery Level, have students see who can come closest to the target period within that time limit. Or, at the Adventure Level, see who can attain the highest score.

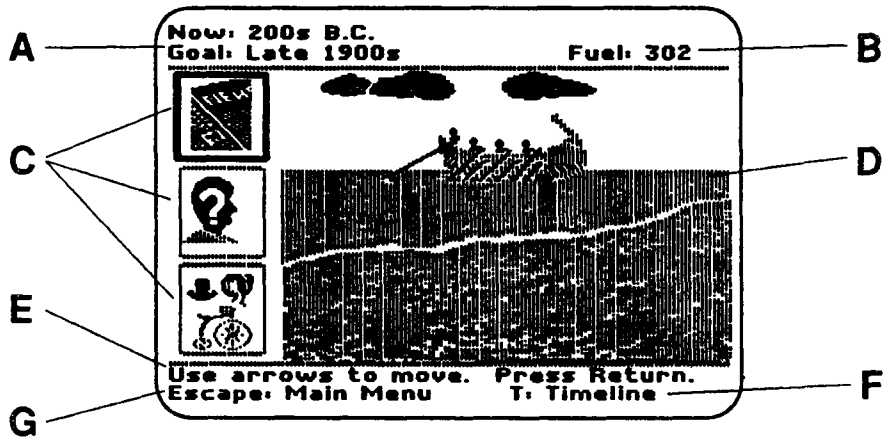
- Have a world history "scavenger hunt." Put together a list of ten to twenty questions that can be answered using the program's "More information" feature. For instance, you might include such questions as "Where was paper invented?" "Who was the first king of Israel?" "Who wrote *The Tale of Genji*?" "Where is the Parthenon?" or "Who was the founder of the Zulu Empire?" Then have students work individually or in teams to see who can find the largest number of correct answers within a given period of time. It might be best once again for them to use ***Time Navigator Around the World*** at the Discovery Level. (Of course, students might be able to answer at least some of the questions *without* ***Time Navigator Around the World.***)

NOTES

Student Handouts

The *Time Navigator Around the World* "Shore View" Screen

The main interaction screen for ***Time Navigator Around the World***—also called the "Shore View" screen—is the first thing you see when you go back in time to a particular period in history. The illustration below describes the various parts of this screen:



A. The "chronometer" – This tells you the period you're currently in as well as your goal.

B. The score – If you're playing at the Adventure Level, the program keeps score, and this is where it appears. You begin with 200 "fuel points." If, however, you're playing at the Discovery Level, the program doesn't keep score, so this space is left blank.

C. "Topic icons" – These represent the topic categories that you can work with. You select the one you wish to use by using the arrow keys and pressing the Return Key when the one you want is highlighted. There are five different topic areas in ***Time Navigator Around the World***, and two or three of them will be available at a time.

D. The "Shore View" – This is simply an illustration of a "typical" seaside scene from the period in which you currently find yourself.

E. The instruction line – This tells you what to do to continue with the program.

F. The "Timeline" option – Pressing the T Key allows you to see or print your timeline, which is a period-by-period record of your "journey through time."

G. The "Escape" line – This tells you where you'll go if you press the Escape Key. Usually it's one step "backward" in the program.

The *Time Navigator Around the World* Topic Categories

The following topic categories, along with their representative "icons," are used in ***Time Navigator Around the World.*** Not all topic categories are available at all times. Some may not appear at all in the particular version of the program you're currently using.

"Headlines" – Describes a major news event of a given period.

Examples: **King Menes Unites Upper and Lower Egypt**
El Cid Captures Valencia
Oyo Defeats Benin in Slave Trade Wars
Galileo Forced to Recant

"Conversations" – Simulates a "typical" conversation about persons or events of popular interest (including politics and popular culture) in a given period. (Only the *subjects* of the conversations are listed on the three-item selection screen. To read the conversations themselves, you must use the standard **M Key** "More information" command.)

Examples: **The creation of the Roman republic**
The rise of European feudalism
The spread of Islam into Southeast Asia

"Arts and Literature" – Cites a popular, influential, and/or critically acclaimed work of literature, architectural structure, musical composition, painting, sculpture, or other artistic creation that was created or published or became popular in a given period.

Examples: **Hanging Gardens of Babylon**
Bhagavad-gita
Romeo and Juliet
Brandenburg Concertos

"Artifacts" – Cites a cultural artifact (such as an invention or a fashion trend) that first appeared, became popular, or gained notoriety in a given period.

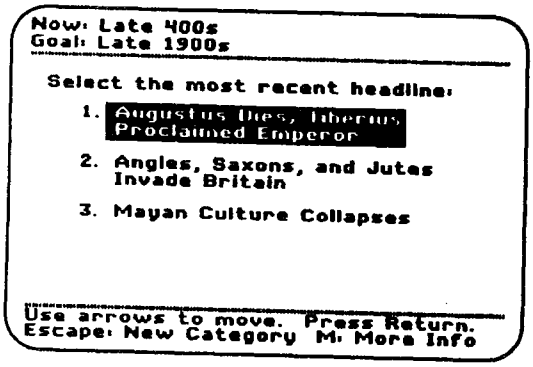
Examples: **Phoenician trading ships**
doublet
steam engine

"People" – Cities a historically or culturally important person who lived or made his or her greatest achievements during a given period.

Examples: **Nefertiti**
Lao-tsu
Toussaint L'Ouverture
Sigmund Freud

Instructions for Deciding Which Item to Choose on the Selection Screens

Step 1: Select a topic category from the "Shore View" screen. Use the **arrow keys** and press the **Return Key** when the icon you want is highlighted.



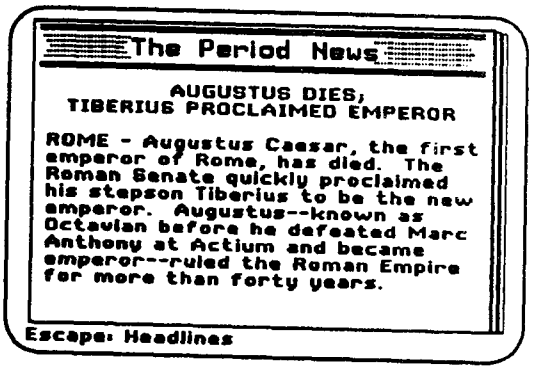
You'll now see the "selection screen"—a list of three items, as seen in the illustration to the left. One of these items is from the period you're currently in. One of them is from an earlier period. And one is from a more recent period.

Your task is to choose the item from *the most recent period.* If you can pick that item, you'll move ahead in time, toward that period and closer to your goal. If you're playing at the *Adventure Level*, you also gain fuel points. But if you pick the item from an earlier period, you'll move backward in time, farther from your goal, and you'll lose points. If you pick the item from the period you're currently in, you'll stay right where you are.

But you don't have to choose just yet. Let's get some information that may help you make the right choice.

Step 2: Use the **arrow keys** or **number keys** to move to an item you want more information about. Then press the **M Key** or **Space Bar** for "More information."

Now you'll see a screen that provides more information about that item, as seen in the illustration to the right, which shows an example from the "Headline" category. When you've finished reading this screen, you're ready to move on to Step 3.



Step 3: Press the **Escape Key** or **Space Bar** to return to the selection screen.

Step 4: Repeat Step 2 as often as you wish.

The more information you get, the more likely you'll make the right choice.

When you think you know which item is the most recent, you're ready for Step 5.

Step 5: Use the **arrow keys** or **number keys** to move to the item you think is the most recent. Then press the **Return Key** to select it.

If you pick the item for a period other than the one you're already in, you'll once again journey through time toward the period you selected. With luck, you'll be moving forward in time toward your goal.

Storms, Bumps, and Fields

As you pass through the time stream in ***Time Navigator Around the World***, you may encounter a strange phenomenon known as a "*cyclo-chronic vortex.*" Cyclo-chronic vortices can be thought of as "*storms*" in the stream of time. They are classified according to their strength:

Force 1 A weak storm that may have no effect on you at all. On the other hand, it may throw you slightly off course. A Force 1 storm moves slowly and in straight horizontal lines.

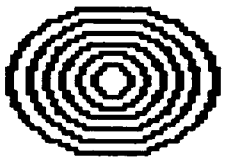
Force 2 A slightly stronger storm that is likely to throw you somewhat off course. Like a Force 1 storm, it moves slowly, but in diagonal paths.

Force 3 A fairly strong storm that is likely to throw you far off course. Or it may damage your chronomobile, causing a loss of fuel points. In rare cases, it can even *destroy* your chonomobile, causing you to be stranded in time. It moves quickly along an unpredictable path.

Force 4 A strong storm that may throw you off course, cause significant fuel loss, or destroy your chronomobile, causing you to be stranded. It moves quickly, "tracking after" you because it curves toward the wakes chronomobiles make in the time stream.

Force 5 The strongest type of storm and extremely dangerous. It can throw you far off course or, more likely, cause major fuel loss or destruction, causing you to be stranded in time. It moves *very* quickly and, like Force 4 storms, "tracks after" you. It's quite difficult to evade a Force 5 storm.

When your scanner detects an approaching storm, you have several choices. You can ignore it and do nothing. The storm may pass by without causing problems. On the other hand, it might throw you off course or damage your chronomobile. You may lose fuel points or be stranded in the past! If you wish, you can press an Apple Key to raise your storm shields. This won't decrease your chances of hitting the storm, but it will reduce the likelihood of harmful effects. Or you can use the arrow keys to take evasive action and try to avoid hitting the storm. Raising your shields and taking evasive action both use up fuel points. The longer you hold down the Apple Key or the more you press the arrow keys, the more fuel points you'll use up. You can even use the Apple and arrow keys at the same time, but this uses up points *very* quickly.



You may also encounter "*chrono-logistic protuberances*," also known as "*bumps*." A bump can't damage your chronomobile, but it *will* throw you off course. If your scanner detects a bump ahead, you can either go around the bump (by using the arrow keys) or go ahead and hit it. Going around the bump keeps you on course, but uses up fuel points. Hitting the bump won't cost you any points, but you'll never know where you'll wind up—just one or two periods off course or many periods, farther back in the past or closer to your goal.

Finally, you may encounter "*chronotron fields*" as you pass through the time stream. But chronotron fields are good! In fact, you should always *try* to hit a chronotron field because it will supply you with *extra fuel points*! Just be careful not to have your storm shields raised when you hit a chronotron field. Storm shields block the positive effects of chronotron fields, preventing you from gaining any extra points.

Appendices

CREDITS

Time Navigator Around the World was produced by a MECC software design team that included Beth Bell, Ed Gratz, Mark Paquette, Dick Sisco, and Wayne Studer. It is based upon the original ***Time Navigator*** program (No. A-247), which was designed by Beth Bell, Vincent Erickson, Charolyn Kapplinger, John Krenz, Nan Leekley, Brian Nesse, Mark Paquette, Diane Portner, and Wayne Studer.

TO THE READER:

MECC has made every effort to ensure the instructional and technical quality of this courseware package. Your comments—as user or reviewer—are valued and will be considered for inclusion in any future version of the product. Please address comments to:

MECC Software Development
3490 Lexington Avenue North
St. Paul, MN 55126-8097

USING A PRINTER WITH THIS COURSEWARE

This product is initially set to work with a standard printer card located in either Slot 1 or Slot 2. If you have this setup, you do not need to do anything further. If you wish to use the external ports on your Apple //c or IIGS, consult your computer *User's Guide* for more information.

If your printer uses a different setup from the one described above or if you need to enter special printing commands, you must use the "Printer Support" option.

The "Printer Support" option appears on the Management Options menu (Figure 1). To access the Management Options, go to the main menu and type **Control-A** (hold down the Control Key and press the A Key). When you see the Management Options menu, select the "Printer Support" option.

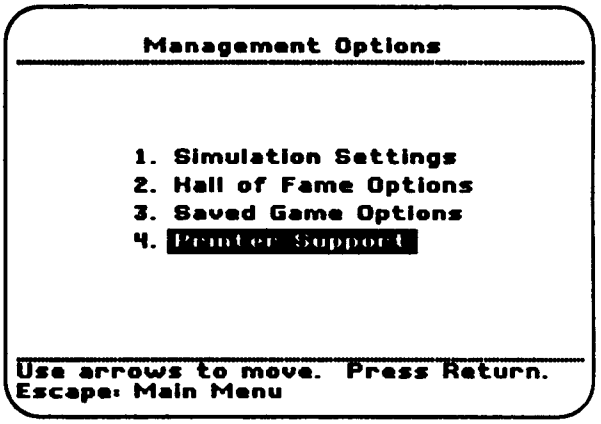


Figure 1

You will then see the "Printer Support" menu (Figure 2). The current Printer Support settings are shown at the top of the screen.

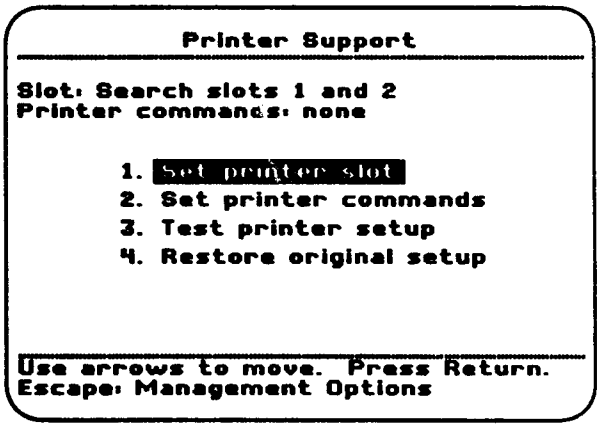


Figure 2

Option 1, "Set Printer Slot," allows you to specify the slot in which your printer interface card is located (Figure 3).

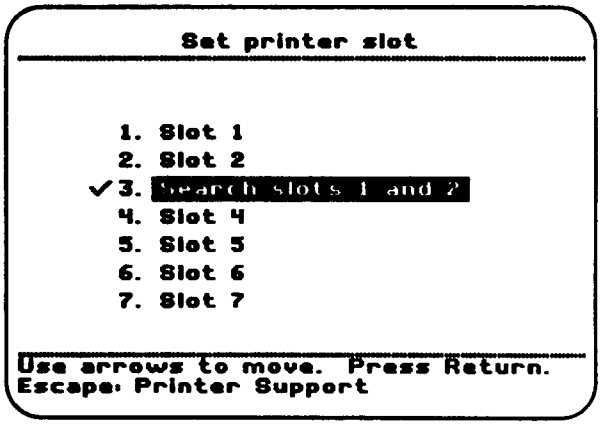


Figure 3

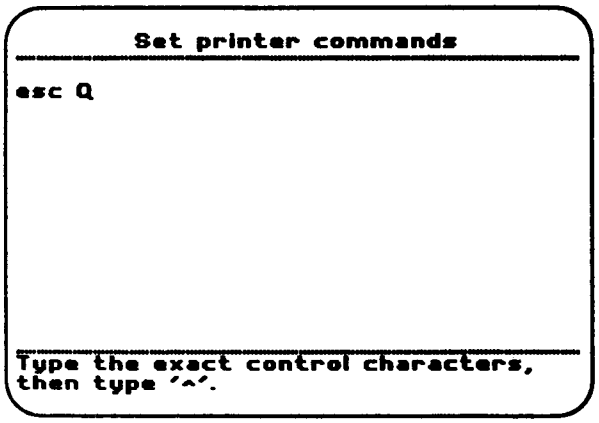


Figure 43

Option 2, "Specify Printer Commands," allows you to enter commands that enable certain types of printers to operate. These special commands are listed in the manufacturer's printer or interface card manual. Figure 4, for example, shows the special command you would enter to produce "ultracondensed" printing (17 cpi) on an Apple Dot Matrix, Apple ImageWriter, or Apple Scribe printer. To enter special commands, type the exact characters required. When finished, type ^ (**Shift-6**) to end.

Here are some other frequently used special commands for the Apple Dot Matrix and ImageWriter printers:

Type Style:	Pica (10 cpi)	Elite (12 cpi)	Bold
Command:	Escape N	Escape E	Escape !

Do not set up your printer to use a proportional font. This setting will cause printed student reports to be formatted incorrectly.

Option 3, "Test Printer Setup," prints out all of the keyboard characters. If these characters are not printed correctly, check the settings on your printer, check to see whether your printer has been connected properly, or look at your interface card manual for special commands.

Option 4, "Restore Original Setup," returns all printer settings to their original state. The original printer setup provides a search of Slots 1 and 2 and does not use any special printer commands.

All changes made to the Printer Support settings are saved on the disk and are permanent until you use the "Printer Support" option again to change the printer settings.

TIME NAVIGATOR AROUND THE WORLD TEXTBOOK CORRELATIONS

Text	*Chapters*	*Span of Game Setting**	*Category Setting*
Addison-Wesley 1991: Stearns, Schwartz, and Beyer, *World History: Traditions and New Directions*	1-8	3999-3000 B.C. to Late 400s	all five categories
	9-14	1-99 to Late 1400s	all five categories *or* all *except* "Arts and Literature"
	15-18	Early 1300s to Late 1700s	all five categories
	19-36	Early 1500s to Late 1900s	all five categories
Harcourt Brace Jovanovich 1987: Mazour, Peoples, and Rabb, *People and Nations: A World History*	1-7	3999-3000 B.C. to Late 500s	all five categories
	8-13	Early 100s to Late 1400s	all five categories
	14-32	Late 1300s to Late 1900s	all five categories
Heath 1990: Jantzen, Krieger, and Neill, *World History: Perspectives on the Past*	1-14	3999-3000 B.C. to Late 1400s	all five categories
	15-37	Early 1300s to Late 1900s	all five categories
Merrill 1990: Farah and Karls, *The Human Experience: A World History*	1-9	3999-3000 B.C. to Late 1400s	all five categories
	10-13	Late 1300s to Late 1700s	all five categories
	14-28	Late 1500s to Late 1900s	all five categories
Scott, Foresman 1990: Wallbank, et al., *History and Life*	1-9	3999-3000 B.C. to Late 400s	all five categories
	10-18	1-99 to Late 1500s	all five categories
	19-25	Early 1300s to Late 1700s	all five categories
	26-40	Late 1500s to Late 1900s	all five categories

Note: *With such relatively narrow "Span of Game" settings, the "Size of Time Leaps" settings should probably be quite small—a minimum ("from" setting) of 1 or 2 and a maximum ("to" setting) of 3 or 4.*

Pronunciation Guide for Difficult Proper Nouns in *Time Navigator Around the World*

The following pronunciations are *approximations* designed to help you with some of the less familiar proper nouns and words of non-English derivation that appear in ***Time Navigator Around the World***. Teachers may wish to duplicate these pages for use by their students.

In this pronunciation guide, clarity and ease of use are emphasized over absolute consistency in always expressing similar vowel sounds in precisely the same way. For example, sometimes the "long *o*" sound is expressed as *o*, while at other times it appears as *oh* or *oe*. The one that seems least ambiguous is used in every individual case. When the most correct phonemes (sounds) or phoneme combinations are not found in standard English, the closest English approximations are used. Stressed syllables appear in UPPER-CASE letters.

The *zh* phoneme that appears often in this pronunciation guide is found in such words as "azure" and "measure." All of the *th* phonemes that appear here are "unvoiced" (as in "thin") as opposed to "voiced" (as in "this"). To remind readers of this fact, the *th* phoneme is always underlined; so, when they see THEN, they should remember to pronounce it with the *th* sound in "thin."

Also note that the spellings of proper names from different languages and cultures—especially those that must be transliterated from languages that don't use the Roman alphabet—often have many equally acceptable variants. To take just two of many examples, in the various contemporary textbooks and reference works consulted in creating ***Time Navigator Around the World***, the name *Chandra Gupta* was also spelled *Candra Gupta* and *Chandragupta*; the last part of the name *Simeon Bar Kosba* was also spelled *Koshba, Kochba, Kokhba, Kokba, Kozhba*, and *Koziba*. You might want to alert students to this fact, discussing with them the problems inherent in trying to write proper names using different alphabets.

Abailard	AB-uh-lard
'Abd al-Malik ibn Marwan	AHB-dahl (*or* AHB-dul) mah-LICK IB-in MAR-wahn
'Abd ar-Rahman	AHB-dar RAH-mun
Abu Bakr	AH-boo BAH-ker
Abu J'far al-Mansur	AH-boo juh-FAR ahl-MAHN-ser
Abu Masa Dshaffar	AH-boo MAH-suh zhah-FAR
Aeneid	uh-NEE-ud *or* uh-NEE-id
Aeschylus	ES-kill-us
Agamemnon	AG-uh-MEM-non
Agesander	AJ-uh-SAN-der
Akhenaton	AH-ken-AH-ton
Al-Hasan ibn Muhammad	ahl-HAH-sun IB-in muh-HAHM-mahd
Amda Tseyon	AHM-dot-SAY-on
Anasazi	AH-nah-SAH-zee
Angkor Wat	ANG-kor WAHT
Anthemius	an-THEE-mee-us
Antigone	an-TIG-oh-nee
Antigonus	an-TIG-oh-nus
Aphrodite	AF-roh-DIE-tee
Aquinas	uh-KWY-nus
Archimedes	AR-kuh-MEE-dees
Ardashir	AR-duh-SHEER
Aristophanes	AIR-is-TOFF-uh-nees
Asoka	uh-SOH-uh
Atahualpa	AH-tuh-WALL-puh
Athenodorus	uh-THEN-oh-DOR-us

Aurelian	uh-REAL-ee-an
Avars	AH-vars
Avicenna of Bukhara	AV-i-SEN-uh of boo-KAR-uh
Avignon	AV-i-nyon ("nyon" as in "ca*nyon*," but with a broader *o* sound)
Axum	ahk-SOOM *or* AHK-soom
Ayacucho	ah-yah-COO-cho
Azcapotzalco	AHS-kah-pot-SAHL-co
Bayeux	BYE-oo *or* BYE-oh
Behaim	BAY-hime (in which "hime" rhymes with "time")
Benin	buh-NEEN
Bhagavad-gita	BAH-guh-VAHD GEE-tuh
Boadicea	BO-ah-duh-SEE-uh
Boethius	bo-EE-the-us
Bonnano Pisano	bo-NAH-no pee-ZAH-no
Brahe, Tycho	BRAH-huh (*or* BRAH-hee), TEE-ko
Byzantine	BIZ-an-teen *or* BIZ-an-tine
Callicrates	kuh-LICK-ruh-tees
Caracalla	KAR-uh-KAL-uh
Cassiodorus	CASS-ee-oh-DOR-us
Castillo of Chichen Itza	cas-STEEL-yo of chee-CHEN eet-SAH
Cato	KAY-toh
Catullus	kuh-TULL-us
Cerularius	SAIR-oo-LAIR-ee-us
Cervantes	ser-VAHN-tays
Cetewayo	set-uh-WAY-oh
Chandra Gupta	CHAN-druh GOOP-tuh *or* KAN-druh GUP-tuh
Chares	CHAR-ays
Charlemagne	SHAR-luh-MAIN
Chartres	SHAR-truh
Chikamatsu, Monzaemon	CHEEK-ah-MAHT-soo, MON-zay-MON
Chretian de Troyes	KREH-tee-en duh TWAH
Chu Yuan-chang	CHOO yoo-AHN CHANG
Commodus	KAHM-oh-dus
Confucius	kun-FYOO-shus (in which FYOO is pronounced "few")
Constantinople	KAHN-stan-tin-OH-pul
Cortes, Hernan	kor-TAYS (*or* kor-TEZ), hair-NAHN
Cristofori, Bartolomeo	KREES-toh-FOR-ee, BAR-toh-lo-MAY-oh
Daguerre	duh-GAIR
Daigo	DAH-ee-go
Dante Alighieri	DAHN-tay al-uh-GAIR-ee
Decius	DEE-shus
Dekanawidah	duh-KAH-nuh-WEE-duh
De Laudibus Dei	DAY LAW-dee-boos DAY-ee
De Officiis Regnum	DAY oh-FEE-chee-ees REG-noom
Descartes, René	day-KART, ruh-NAY
Deuteronomy	DOO-ter-ON-oh-mee *or* DYOO-ter-ON-oh-mee
Diocletian	DIE-uh-KLEE-shun
Diophantus	DIE-uh-FAN-tus
Domitian	doh-MISH-un
Don Giovanni	DON jee-oh-VAHN-ee
Don Quixote	DON key-HOE-tay
Dracontius	druh-KAHN-chus

Edo	AY-doh *or* EE-doh
Erasmus, Desiderius	er-AS-mus, DES-uh-DEER-ee-us
Ethelfleda	ETH-ul-FLAY-duh
Ethelred	ETH-ul-RED
Euclid	YOO-klid
Euripides	yoo-RIP-uh-dees
Ezana	ay-ZAHN-uh *or* ee-ZAHN-uh
Fatamid	FAT-uh-mid
Fibonacci	FIB-oh-NAH-chee
Froissart, Jean	FWAH-sart, ZHAHN
Galen	GAY-len
Garibaldi, Giuseppe	GAIR-uh-BALL-dee, juh-SEP-ee
Gaugamela	GAW-guh-MEL-uh
Geoffrey	JEFF-ree
Ghana	GAH-nuh
Gilgamesh	GILL-guh-MESH
Goethe	GUR-tuh
Guericke, Otto von	GAIR-uh-kuh, OTT-oh von
Guernica	GWAIR-nee-kuh
Gustavus Adolphus	gus-TAY-vus (*or* gus-TAH-vus) uh-DAHL-fus
Gutenberg	GOO-ten-berg
Hagia Sophia	HAH-gee-ah (with a "hard" *g* as in "gun") so-FEE-uh
Haile Selassie	HAY-lee suh-LASS-ee
Halicarnassus	HAL-uh-kar-NASS-us
Hanseatic League	HAN-see-AT-ick LEEG (with a "hard" *g*, as in "peg")
Hardouin-Mansart, Jules	HAR-doo-an man-SART, JOOL
Hatshepsut	hat-SHEP-sut
Hegira	huh-JIE-ruh
Heliand	HAY-lee-and
Heliogabalus	HE-lee-oh-GAB-uh-us
Henlein	HEN-line
Herculaneum	HER-kyoo-LAY-nee-um *or* HER-kyoo-luh-NAY-um
Herekali	HAIR-uh-KAL-ee
Hesiod	HESS-ee-ud *or* HE-see-ud
Hiawatha	HIE-uh-WAH-thuh (in which HIE is pronounced "high")
Hierakonpolis	HI-ruh-KAHN-puh-lis
Hippocrates	hip-POCK-ruh-tees
Horyuji	hor-ee-OO-jee
Hrosvitha	RAHS-vith-uh *or* ROES-vith-uh
Husuni Kubwa	hoo-SOO-nee KOOB-wah
Huygens, Christian	HIG-uns (*or* WIG-uns), KRIST-yun (*or* KREES-tee-an)
Hyksos	HICK-soes
I Ching	EE CHING
Ictinus	ick-TIE-nus
Ife	EE-fay
Iliad	ILL-ee-ud *or* ILL-ee-ad
Imhotep	im-HOE-tep
Iroquois	EAR-oh-kwoy
Isadore of Miletus	IZ-uh-dor of my-LEE-tus
Itzcoatl	ITS-co-AH-tul
jeu de paume	ZHUH duh PAHM
Josephus, Flavius	jo-SEE-fus, FLAY-vee-us

Jotomon'in	jo-toh-MO-nin
Juarez, Benito	WAH-rez (*or* HWAR-ez), buh-NEE-toh
Juba of Mauretania	JOO-bah of MAW-ruh-TAY-nee-uh
Judas Maccabeus	JOO-dus MACK-uh-BEE-us
Jugurtha	joo-GUR-thuh
Justinian	jus-TIN-ee-un
kabuki	kuh-BOO-kee
Kallinikos	KAL-uh-NEE-koes *or* KAL-uh-NIE-koes
Kaniembo	kan-ee-EM-bo
Kant, Immanuel	KAHNT (*or* KANT, pronounced "can't"), ee-MAN-yoo-el
Kao Tsung	KOW (*as in* "cow") SOONG *or* KOWT SOONG
Karanga	kar-AHN-guh
Kashta	KAHSH-tuh
Kazembe	ka-ZEM-bee *or* ka-ZEM-bay
Keiti	kay-EE-tee *or* KAY-tee
Khafre	KAF-ree *or* KAF-ray
Khazars	KAH-zars
Khufu	KOO-foo
Khwarezm	kwah-REZ-um *or* ker-AZ-um
Kilwa	KEEL-wah
Kimpa Vita	KIM-puh VEE-tuh
Kokin-shu	KOH-kin-SHOO
Koran	kuh-RAHN
Kuan Han-ch'ing	koo-WAHN (*or* KWAHN) hahn-CHING
Lao-tsu	LOUT-SOO
Laocoon	lay-AH-co-ON
Leeuwenhoek, Antoine von	LAY-wen-hook (*or* LAY-wen-hoke), an-TWAHN von
Le Vau, Louis	luh VOE, LOO-ee
Leviticus	luh-VIT-uh-kus
Licinius	luh-SIN-ee-us
Linnaeus, Carolus	luh-NAY-us, KAIR-oh-lus
Lippershey	LIP-er-SHAY
Lunda	LOON-duh
Lysistrata	LIS-is-TRAH-tuh
Ma Yuan	MAH yoo-AHN (*or* YWAHN)
Machiavelli	MAH-kee-uh-VEL-ee
Machu Picchu	MAH-choo PEEK-choo
Manco Capac	MAHN-co KAH-pock (*or* kah-POCK)
Manichaeism	MAN-uh-KEE-ism
Mansa Musa	MAHN-sah MOO-sah
Marconi, Guglielmo	mar-KOH-nee, goo-glee-EL-mo
Marcus Aurelius	MAR-kus uh-REAL-ee-us
Marina, Doña	muh-REE-na, DOH-nyuh
Maurya	MOU-er-yuh (in which MOU rhymes with "cow")
Mausolus	mah-SO-lus *or* MAW-so-lus
Maximian	mack-SIM-ee-un
Medea	muh-DEE-uh
Medici, Lorenzo de	MED-uh-chee, luh-REN-zoh duh
Mencius	MEN-shus
Menes	MEE-nees
Mentuhotep	MEN-too-HOE-tep
Mercator, Gerardus	mer-KAY-ter, jer-AR-dus
Methodius	muh-THOE-dee-us

Miltiades	mil-TEE-uh-days
Mistral, Gabriela	mays-TRAHL, GAH-bree-AY-lah
Mixcoatl	MIX-co-AH-tul
Mogul	MO-gul
Moliere	mo-lee-AIR *or* mol-YAIR
Monteczuma	MON-tuh-ZOO-mah *or* MON-tay-ZOO-mah
Monteverdi, Claudio	MON-tuh-VAIR-dee, KLAW-dee-oh
Montgolfier, Jacques-Etienne	mont-GOLF-ee-ay, ZHOCK ay-tee-EN
Montgolfier, Joseph-Michel	mont-GOLF-ee-ay, zhoe-SEF mee-SHELL
Moravia	mor-AY-vee-uh
Le Morte d'Arthur	luh MORT dar-THUR
Mozart, Wolfgang Amadeus	MOAT-sart, VULF-gong AH-muh-DAY-us
Mu'awiyah	moo-AH-wee-ah
Muhammad	moo-HAH-mahd
Murasaki Shikibu	MOO-rah-SAH-kee SHEE-kee-BOO
Mutsuhito	moot-soo-HEE-toh
Mycenae	MY-suh-nay *or* my-SEE-nay *or* my-SEE-nee
Nazca	NAZ-kuh *or* NAHZ-kuh
Nebuchadnezzar	NEB-yoo-kud-NEZ-ar
Nefertiti	NEF-er-TEE-tee
Nehru, Jawaharlal	NAY-roo, jah-wah-HAR-lul
Neruda, Pablo	nuh-ROO-duh (*or* nay-ROO-dah), PAHB-lo
Nike of Samothrace	NYE-kee of SAM-oh-THRAYS (in which NYE rhymes with "pie")
Notre-Dame de Paris	NO-truh DAHM duh pair-EE
Numidia	noo-MID-ee-uh
Ockham	OCK-um
Odoacer	OH-doh-AH-ser *or* OH-doh-AY-ser
Odysseus	oh-DIS-ee-us
Oedipus	ED-uh-pus *or* EE-duh-pus
Okuni	oh-KOO-nee
ollamalitzli	OH-luh-muh-LITS-lee
Olmecs	OHL-mecks
Omar Khayyam	OH-mar kye-AHM (*or* kye-AM, in which "kye" rhymes with "pie")
Omayyad	oh-MY-yad
Orfeo	OR-fay-oh
Origen	OR-uh-jen
Orleans (in France)	OR-lay-ahn
Ostrogoths	AHS-tro-GOTHS
Ovid	AH-vid
Oyo	oh-YO
Ozolua	oh-zo-LOO-ah
paganica	pah-gahn-EE-ka *or* pah-GAHN-ee-ka
palla	PAL-uh
Palmyra	pal-MY-rah
Paré, Ambrose	par-AY, AM-brohz
Pascal, Blaise	pas-KAL (*or* PAS-kul), BLAYZ
Pasteur, Louis	pas-TUR, LOO-ee
Pax Romana	POCKS ro-MAHN-ah
Peloponnesian	PEL-uh-po-NEE-zhun
Pericles	PAIR-uh-kleez
Pertinax	PER-tin-acks
Pharos	FAIR-ohs
Phidias	FID-ee-us

Phoenician	foe-NEE-shun
Pi Sheng	PEE SHENG
Piankhi	pee-AHN-kee
Picasso, Pablo	pee-KAH-so, PAH-blo
Pietà	PEE-ay-TAH
Pizarro, Francisco	pee-SAR-oh, frahn-SIS-co
Pliny	PLIN-ee
Plutarch	PLOO-tark
Pocahontas	PO-kuh-HAHN-tus
Polydorus	PAH-luh-DOR-us
Pompeii	pahm-PAY
Pompey	PAHM-pee
Ponte, Lorenzo da	PON-tay, lo-REN-zoh duh
Powhatan	POW-uh-TAN *or* pow-HAT-un
Praetorius	pruh-TOR-ee-us *or* pray-TOR-ee-us
Ptolemy	TAHL-uh-mee
Pushkin, Aleksandr	PUSH-kin (*or* POOSH-kin), AL-ecks-AN-der
Pydna	PID-nuh *or* PEED-nuh
Pythagoras	pith-AG-or-us
Pythius	PITH-ee-us
Quetzalcoatl-Tolpiltzin	KET-zal-co-AH-tul tol-PILT-zin
Rembrandt van Rijn	REM-brant van RIN
Richelieu	RISH-uh-loo *or* RE-shuh-lyoo
Rivera, Diego	ree-VAY-rah, dee-AY-go
Roba'iyat	ro-BAH-ee-yaht *or* ro-BAY-aht *or* ROO-bee-yat
Romulus Augustulus	ROM-yoo-lus aw-GUST-yoo-lus
Roswitha	RAHS-vith-uh *or* ROES-vith-uh
Rousseau, Jean-Jacques	roo-SO, ZHAHN ZHOCK
Rugerus of Helmarshausen	ROO-gur-us of HEL-mar-SHOU-sen (SHOU rhymes with "cow")
Rurik	RUR-ik
Rustichello	ROOS-ti-CHELL-oh
Saladin	SAL-uh-DIN *or* SAL-ah-DEEN
Samarkand	SAM-ar-KAND
San Martin, Jose de	SAN mar-TEEN, ho-ZAY duh
Sankara Acharya	san-KAR-ah ah-CHAR-yah
Sappho	SAF-oh
Saracens	SAIR-uh-sens
Saragossa	SAIR-uh-GO-suh
Sargon	SAR-gahn
Sassan	sas-SAHN
Sassanid	sas-SAHN-id
Satyrus	sat-EYE-rus *or* sat-EER-us
Schola Cantorum	SKO-lah (*or* SHO-lah) kahn-TOE-room
Scipio Aemilianus	SKIP-ee-oh (*or* SIP-ee-oh) AY-mil-ee-AN-us
Sebastian del Cano	suh-BAST-yun del KAH-noh
Seleucus	suh-LOO-kus *or* sil-OO-kus
Seljuk	SELL-juck *or* SELL-jook
Severus	suh-VEER-us
Shah Jahan	SHAH juh-HAHN
Shaka	SHAH-kuh
Shih Huang Ti	SHEE hoo-WONG (*or* HWONG) TEE
Shi'ite	SHEE-ite
Shomu	SHO-moo

Shona	SHO-nah
Shotuku	sho-TOO-koo
Simeon Bar Kosba	SIM-ee-un BAR KOCH-bah *or* KOSH-bah
Socrates	SOCK-ruh-TEES
Songhai	SONG-hie or SAHN-gie (with a "hard" *g*, as in "guy")
Sonni 'Ali	SO-nee ah-LEE
Sophocles	SAHF-oh-KLEES or SAHF-uh-KLEES
Sostratus of Cnidus	sus-TRAH-tus of NIE-dus
Spartacus	SPAR-tuh-kus
Spinoza, Benedict de	spin-OH-zuh, BEN-uh-dikt duh
Stravinsky, Igor	struh-VIN-skee, EE-gor
Striggio, Alessandro	STREE-jee-oh, al-ay-SAHN-droh
stupa	STOO-puh
Sucre, Antonio de	SOO-kray, an-TOE-nee-oh day
Suetonius	soo-TOE-nee-us
Suiko	soo-EE-koh
Suleiman	SOO-lay-MAHN
"Sumer Is Icumen In"	SOO-mer is ick-OO-men in
Sumerians	soo-MAIR-ee-ans
Summa Theologica	SOO-muh TAY-oh-LO-jee-kuh
Sun Yat-sen	SUN (*or* SOON) yaht-SEN
Sung Yuen	SOONG yoo-EN
Sunni	SOO-nee
Suryavarman	SUR-yah-VAR-mahn
Sushun	soo-SHOON
Sutton Hoo	SUT-un HOO
Swahili	swah-HEE-lee
Tacitus	TASS-uh-tus *or* TASS-ih-tus
Tain Bo Cuailgne	TOYN boe COO-lee (*or* COO-ayn)
T'ang	TONG
Taoism	DOW-ism (*or* TOW-ism, in which DOW or TOW rhymes with "cow")
Tarquinius Superbus	tar-KWIN-ee-us (*or* tar-KWY-nee-us) soo-PER-bus
Tchaikovsky, Peter Ilich	chy-KOF-skee, PEE-ter ILL-itch (*or* IL-yitch)
Tenochtitlan	tay-NOTCH-teet-LAHN *or* tuh-NOCK-tayt-LAHN
Teotihuacan	TAY-oh-TEE-wah-KAHN
Texcocos	TECKS-co-COS
Thebes	THEEBZ
Theodoric	thee-ODD-or-ick *or* thee-oh-DOR-ick
Theodosius	thee-oh-DOH-shus
Theophilus	thee-AH-fill-us
Tiberius	tie-BEER-ee-us
Tikal	tee-KAHL
Timbuktu	TIM-buck-TOO
Tiridates	TEER-uh-DAY-teez *or* TIE-ruh-DAY-teez
Titian	TEE-shun *or* TIH-shun
tlachtli	TLOTCH-tlee *or* TLOCK-tlee
Tlacopans	TLOCK-oh-pahns
Tokugawa Ieyasu	TOE-koo-GAH-wah ee-AY-ah-soo
Tordesillas	TOR-day-SEEL-yahs
Torricelli, Evangelista	TOR-uh-CHELL-ee, ay-VAHN-jell-EE-stah
Tou-o yuan	TOO-oh yoo-AHN
Tours and Poitiers	TOUR (rhymes with "sure") and PWAH-tee-AY
Toussaint L'Ouverture	too-SAHNT loo-vair-CHOOR
Trafalgar	truh-FAL-gar

Trajan	TRAY-jun
Ts'ai Lun	SIE (rhymes with "pie") LOON
Tu Fu	TOO FOO
Tupac Amaru	TOO-pock (*or* too-POCK) ah-mar-OO
Tupac Yupanqui	TOO-pock (*or* too-POCK) yoo-PAHN-kee
Tutankhamen	TOOT-ahnk-AH-men
Tutuola, Amos	TOO-too-OH-lah, AY-mus
Ulysses	yoo-LISS-eez
'Umar ibn al-Khattab	OO-mar (*or* oo-MAR) IB-in ahl-kuh-TAHB
Umayyad	oo-MY-ahd
Uxmal	OOKS-mal *or* UCKS-mal
Valencia	vuh-LEN-see-uh
Valens	VAY-lens
Van Gogh	van GO *or* van GOCK
Varangians	vuh-RAN-jee-uns *or* vuh-RAIN-jee-uns
Vedas	VAY-das
Versailles	vair-SIE (in which SIE rhymes with "pie")
Vespasian	ves-PAY-zhun *or* ves-PAY-shun
Viracocha	veer-ah-ÇO-chah
Visigoths	VIS-uh-GOTHS
Vlad Tepes	VLAD SEP-esh *or* VLAD TEP-esh
Vladimir	VLAD-uh-MEER
Voltaire	vol-TAIR
Vostok	VOSS-tock
Wagadu	WOG-ah-DOO
Wagner, Richard	VOG-ner, REE-card (*or* RICH-ard)
Wollstonecraft	WOLL-stone-kraft
Wu Chao	woo JOU (in which JOU rhymes with "now")
Xerxes	ZERK-sees
Yasovarman	YAH-so-VAR-mahn
Yomei	YO-may *or* yo-MAY
Yoritomo, Minamoto	yor-EE-toh-mo, min-AH-mo-toh
Yoruba	yor-OO-buh
Yucatan	YOO-kuh-TAN
Yvain	ee-VAIN
Zenobia	zuh-NO-bee-uh
Zeus	ZOOSE
Zhao Kuangyin	ZHOW (rhymes with "how") kwong-YIN (*or* kwon-JIN)
ziggurats	ZIG-uh-RATS
Zimbabwe	zim-BOB-way *or* zim-BOB-wee
Zoroaster	ZOR-oh-AS-ter
Zoroastrianism	ZOR-oh-AS-tree-an-ism
Zoser	ZO-ser *or* ZO-sher

INDEX TO THE DATA IN *TIME NAVIGATOR AROUND THE WORLD*

Time Navigator Around the World contains references to hundreds of names, works of literature, artworks, cultural artifacts, and other items of interest in world history and culture. The following index lists the items referred to in ***Time Navigator Around the World***. After each item are one or more code numbers that refer to the period(s) in which that item appears:

1 = 3999-3000 B.C.
2 = 2999-2000 B.C.
3 = 1999-1000 B.C.
4 = 999-500 B.C.
5 = 400s B.C.
6 = 300s B.C.
7 = 200s B.C.
8 = 100s B.C.
9 = 99-1 B.C.
10 = (A.D.) 1-99
11 = Early 100s
12 = Late 100s
13 = Early 200s
14 = Late 200s
15 = Early 300s
16 = Late 300s
17 = Early 400s
18 = Late 400s
19 = Early 500s
20 = Late 500s
21 = Early 600s
22 = Late 600s
23 = Early 700s
24 = Late 700s
25 = Early 800s
26 = Late 800s
27 = Early 900s
28 = Late 900s
29 = Early 1000s
30 = Late 1000s
31 = Early 1100s
32 = Late 1100s
33 = Early 1200s
34 = Late 1200s
35 = Early 1300s
36 = Late 1300s
37 = Early 1400s
38 = Late 1400s
39 = Early 1500s
40 = Late 1500s
41 = Early 1600s
42 = Late 1600s
43 = Early 1700s
44 = Late 1700s
45 = Early 1800s
46 = Late 1800s
47 = Early 1900s
48 = Late 1900s

Following each code number is a code letter that indicates the topic category in which that item appears:

A = Artifacts
L = Arts and Literature
C = Conversations
H = Headlines
P = People

While this index is extremely detailed, it is *not* totally comprehensive. Some subjects that appear with very great frequency are not included, such as "China," "Rome," "Roman Empire," and "England." These subjects are referred to in ***Time Navigator Around the World*** literally *dozens* of times, so they are not listed in this index. Also, some passing references deemed of little use in helping students to determine the correct time period are not included.

BIBLIOGRAPHY OF REFERENCE WORKS AND TEXTBOOKS CONSULTED

General Reference Works Consulted

Barraclough, Geoffrey, ed. *The Times Atlas of World History*. Maplewood, N.J.: Hammond, Inc., 1978.

Boucher, François. *20,000 Years of Fashion: The History of Costume and Personal Adornment*. Expanded edition with a new chapter by Yvonne Deslandres. New York: Harry N. Abrams, Inc., 1987.

Boyden, David. D. *An Introduction to Music*. Second edition. New York: Alfred A. Knopf, 1970.

Cassin-Scott, Jack. *The Illustrated Encyclopædia of Costume and Fashion, 1550-1920*. New York: Sterling Publishing Company, Inc., 1986.

Compton's Encyclopedia and Fact-Index. 1984 edition. 26 volumes. Chicago: F.E. Compton Company, 1984.

Contini, Mila. *Fashion: From Ancient Egypt to the Present Day*. New York: Crescent Books, 1965.

Giscard d'Estaing, Valérie-Anne. *The Second World Almanac Book of Inventions*. Translation by Marc Chanliau, *et al.* New York: World Almanac, 1986.

Grun, Bernard. *The Timetables of History: A Horizontal Linkage of People and Events*. New, updated edition. Based on Werner Stein's *Kulturfahrplan*. New York: Touchstone/Simon and Schuster, 1979.

Hart, Michael H. *The 100: A Ranking of the Most Influential Persons in History*. New York: Hart Publishing Company, Inc., 1978.

Harvey, Paul, compiler and ed. *The Oxford Companion to English Literature*. Fourth edition, revised by Dorothy Eagle. Oxford: Oxford University Press, 1967.

Hindley, Geoffrey, ed. *The Larousse Encyclopedia of Music*. English language edition. Secaucus, N.J.: Chartwell Books, Inc., 1971.

Hirsch, E.D., Jr., *et al. The Dictionary of Cultural Literacy*. Boston: Houghton Mifflin Company, 1988.

The Historical Atlas of the United States. Centennial edition. Wilbur E. Garrett, ed. Washington, D.C.: National Geographic Society, 1988.

History–Social Science Framework for California Public Schools, Kindergarten Through Grade Twelve. Developed by the History–Social Science Curriculum Framework and Criteria Committee and adopted by the California State Board of Education. Sacramento: California State Department of Education, 1988.

Hogg, Ian V. *The Illustrated Encylopedia of Ammunition*. Secaucus, N.J.: Chartwell Books, Inc., 1985.

Hughes, Langston and Milton Meltzer. *African-American History: Four Centuries of Black Life*. Pat Browne, Asa G. Hilliard, and Mary McFarland, eds. New York: Scholastic, Inc., 1990.

The Information Please Almanac, Atlas and Yearbook 1990. Boston: Houghton Mifflin Company, 1990.

Janson, H.W. *History of Art: A Survey of the Major Visual Arts from the Dawn of History to the Present Day*. Second edition. Englewood Cliffs, N.J.: Prentice-Hall, Inc. and New York: Harry N. Abrams, Inc., 1977.

Kane, Joseph Nathan. *Famous First Facts: A Record of First Happenings, Discoveries and Inventions in the United States*. Fourth edition, expanded and revised. New York: H.W. Wilson Company, 1981.

Kinder, Hermann and Werner Hilgemann. *The Anchor Atlas of World History*. Two volumes. Translated by Ernest A. Menze. New York: Anchor Press/Doubleday, 1974 (Volume 1) and 1978 (Volume 2).

McEvedy, Colin. *The Macmillan World History Factfinder*. New York: Macmillan Publishing Company, 1984.

McNeill, William H. *History of Western Civilization: A Handbook*. Sixth edition. Chicago: University of Chicago Press, 1986.

The New Encyclopædia Britannica. Fifteenth edition. Thirty volumes. Chicago: Encyclopædia Britannica, 1984.

Panati, Charles. *Extraordinary Origins of Everyday Things*. New York: Harper and Row, 1987.

Rand McNally Historical Atlas of the World. R.I. Moore, general editor. Chicago: Rand McNally & Company, 1981.

Ridley, Anthony. *An Illustrated History of Transportation*. New York: The John Day Company, 1969.

Robertson, Patrick. *The Book of Firsts*. New York: Clarkson N. Potter, Inc., 1974.

Schlesinger, Arthur M., Jr., general editor. *The Almanac of American History*. New York: Putnam Publishing Company, 1983.

Seldes, George, compiler. *The Great Thoughts*. New York: Ballatine Books, 1985.

Stone, George Cameron. *A Glossary of the Construction, Decoration and Use of Arms and Armor in All Countries and in All Times, Together with Some Closely Related Subjects*. New York: Jack Brussel, Publisher, 1961 (reprint of original 1934 edition).

Trachtenberg, Marvin and Isabelle Hyman. *Architecture: From Prehistory to Post-Modernism/ The Western Tradition*. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1986.

Urdang, Laurence, ed. *The Timetables of American History*. New York: Touchstone/Simon and Schuster, 1981.

Williams, Trevor I. *The History of Invention: From Stone Axes to Silicon Chips.* New York: Facts on File Publications, 1987.

The World Almanac and Book of Facts 1991. New York: World Almanac, 1990.

History Textbooks Consulted

Cooper, Kenneth S. *The World and Its People: Europe, Africa, Asia, and Australia.* Morristown, N.J.: Silver Burdett Company, 1984.

Farah, Mounir and Andrea Berens Karls. *The Human Experience: A World History.* Columbus, Ohio: Merrill Publishing Company, 1990.

Helmus, Timothy M., *et al. The World and Its People: The United States and Its Neighbors.* Morristown, N.J.: Silver Burdett Company, 1984.

Jantzen, Steven L., Larry S. Krieger, and Kenneth Neill. *World History: Perspectives on the Past.* Lexington, Mass.: D.C. Heath and Company, 1990.

Joyce, William W., *et al. Exploring Our World: Latin America and Canada.* Chicago: Follett Publishing Company, 1980.

Lee, Susan Dye. *Exploring Our World: Eastern Hemisphere.* Chicago: Follett Publishing Company, 1980.

Mazour, Anatole G., John M. Peoples, and Theodore K. Rabb. *People and Nations: A World History.* Revised edition. Orlando: Harcourt Brace Jovanovich, 1987.

Stearns, Peter N., Donald R. Schwartz, and Barry K. Beyer. *World History: Traditions and New Directions.* Menlo Park, California: Addison-Wesley Publishing Company, 1991.

Wallbank, T. Walter, *et al. History and Life.* Fourth edition. Glenview, Illinois: Scott, Foresman and Company, 1990.

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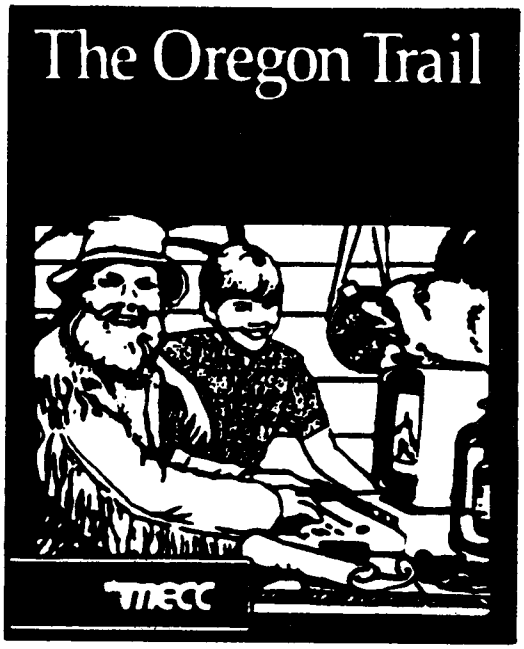

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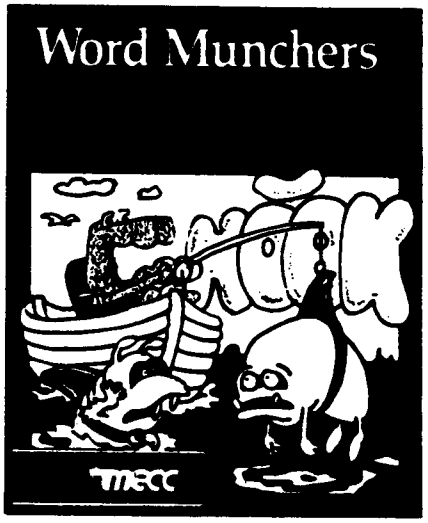

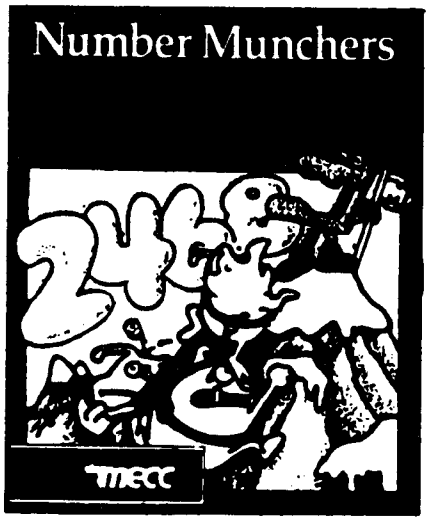

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